WHITE PASS AND YUKON RAILWAY DIARY

C. H. RIFF

pg. 565.)

White Pass and Yukon Ry.—Reports from Dawson, Yukon, state that it is expected to start construction on a line from White-horse to the copper mine camps, about 20 miles, early next year. It is expected that the extension will handle 1,000 tons of ore daily.

Winnipeg City Power Line.—The City of

October 1907

Rocky Mountains.

White Pass and Yukon Ry.—United States papers state that construction is progressing on a branch leading to the Whitehorse copper fields, two miles of grading having been completed, and 1½ miles of track laid. A. L. Berdoe, General Manager, was quoted

February 1908

White Pass and Yukon Ry. Report.

The report of the directors for the year ended June 30, 1907, includes the results of the operations of the local companies (all of whose capital is owned by the White Pass and Yukon Ry. Co.) for their financial year, which ended Dec. 31, 1906. The profit and loss account, after providing for debenture stock and debenture interest and all charges, showed a net profit of £87,904 2s. 9d., to which was added the balance of £14,765 4s. 5d. brought forward from the previous year, making a total of £102,669 7s. 2d. Out of this a full sinking fund instalment of £16,586 had been provided, and an interim dividend of 4s. per share, absorbing £27,500, paid in July. A further dividend of 6s. per share, absorbing £41,-250, was recommended to be paid Jan. 15, leaving a balance of £17,335 7s. 2d. to be carried forward.

The report of S. H. Graves, President of the local companies, gave information as to the traffic over the company's railway, and other lines. During 1906 there were carried on the railway 13,720 passengers and 32,204 tons of freight; the average haul was 79.60 miles per passenger, and 105.94 miles per ton of freight, while the average load per car was 11.94 tons. The operating expenses of the rail division show a decrease of $33,044.24 as compared with 1905, and of $58,581.68 as compared with 1904. The company's fleet carried 8,262 passengers and 27,574 tons of revenue freight. The company operated 11 steamers and nine barges on the river and lakes, and held eight steamers and one barge in reserve. Two barges were built at the company's Whitehorse shipyards during the year; and some improvements were made at the company's Dawson shipyard. The operating expenses show a reduction of $36,-153.60 as compared with 1905. "A better idea of the saving," said Mr. Graves, "is gained by comparison with the results of 1904, which shows that in 1906 we carried 1,413 more passengers and 1,508 more tons

Coal Companies Rd. (Nov., 1907, pg. 851).

White Pass and Yukon Ry.—Application is being made at the current session of the Dominion Parliament for an act authorizing the British Yukon Ry. Co. (the Canadian title of the W.P. and Y. R. Co.) to construct an extension of the existing line of railway from near milepost 106, south of Whitehorse, Yukon, northwesterly to the Tahkeena River, a distance of about 15 miles. The line is to be constructed within five years, and bonds or other securities not exceeding £6,000 a mile of the new line may be issued.

We are advised that the company purposes constructing this year a branch to open up the various copper mines in the neighborhood of White Horse, Yukon. This branch will leave the main line 103.5 miles north of Skaguay, and about 6.5 miles south of White Horse, and run northwesterly. Construction will be started about Mar. 15, or as soon as the weather permits, and it is hoped to complete the track in July. The mileage to be constructed during the year is, main line, 12.50 miles; spurs and sidings, 3.80 miles; total, 16.30 miles. Though the route lies through very rough country, there are no extraordinary difficulties to overcome. On the main line, the total curvature is 2,429° 03′, equalling 5.27 miles; total tangent, 7 23 miles; average curvature per mile 194° 18′, curvature percentage 42, maximum curvature 18°, maximum gradient 2.25%, difference in elevation between terminals 265.7 ft., total rise 507.2 ft. (Feb., pg. 101).

MARCH 1908

White Pass and Yukon Ry.—A. L. Berdoe, General Manager, according to a Seattle, Wash., despatch of Dec. 4, said there were about 500,000 tons of copper ore in sight at the mines which would be reached by the branch line which it is proposed to construct. It is hoped to start the construction early in the spring. The company also proposed to erect bunkers at Skagway, Alaska, having a capacity of 5,000 tons for the storage of ore. The ore will be shipped from Skagway to the smelters on Puget Sound. (Nov., 1907, pg. 829.)

Winnipeg City Power Plant.—The Winnipeg Board of Control has granted the William

recklessly jeopardized.

Freight Rates to Yukon.—The Minister of Railways, replying to a question in the House of Commons recently, said the Board of Railway Commissioners had not made any report or order respecting the freight rates charged on the White Pass and Yukon Ry. The Board held a sitting at Dawson for the purpose of hearing the complaints against the rates charged on the railway, but no evidence was laid before it to form an opinion whether the rates were higher than were reasonable under the circumstances of the traffic. The Board then directed its Chief Traffic Officer to make full enquiries and report upon the subject. This officer investigated the books, accounts and records of the railway company, and subsequently obtained, by authority of the Board, the services of an accountant to assist him in dealing with them. On account of the labor involved and the pressure of work in his department, and on account of his having been obliged to undergo a surgical operation during the past summer, the Chief Traffic Officer had not made any report in the matter. The Board, however, expected to have the report shortly, when it would be in a position to give a decision upon the various points raised.

dividend of 6s. per share, absorbing £41,-250, was recommended to be paid Jan. 15, leaving a balance of £17,335 7s. 2d. to be carried forward.

The report of S. H. Graves, President of the local companies, gave information as to the traffic over the company's railway, and other lines. During 1906 there were carried on the railway 13,720 passengers and 32,204 tons of freight; the average haul was 79.60 miles per passenger, and 105.94 miles per ton of freight, while the average load per car was 11.94 tons. The operating expenses of the rail division show a decrease of $33,044.24 as compared with 1905, and of $58,381.68 as compared with 1904. The company's fleet carried 8,262 passengers and 27,574 tons of revenue freight. The company operated 11 steamers and nine barges on the river and lakes, and held eight steamers and one barge in reserve. Two barges were built at the company's Whitehorse shipyards during the year; and some improvements were made at the company's Dawson shipyard. The operating expenses show a reduction of $36,-153.60 as compared with 1905. "A better idea of the saving," said Mr. Graves, "is gained by comparison with the results of 1904, which shows that in 1906 we carried 1,413 more passengers and 1,508 more tons

WPK

2s. 9d., to which was added the balance of £14,765 4s. 5d. brought forward from the previous year, making a total of £102,669 7s. 2d. Out of this a full sinking fund instalment of £16,586 had been provided, and an interim dividend of 4s. per share, absorbing £27,500, paid in July. A further dividend of 6s. per share, absorbing £41,-250, was recommended to be paid Jan. 15, leaving a balance of £17,335 7s. 2d. to be carried forward.

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Amount set aside out of profits for year ended June 30, 1906, in accordance with terms of agreement, dated Apr. 22, 1902.	16,169	0	11			
Interest on sinking fund investments to June 30, 1907..	4,433	15	5			
				89,394	10	1
Profit and loss account				102,669	7	2
Balance of profit per balance sheet at June 30, 1906..	£99,684	5	4			
Less amount carried to sinking fund..	16,169	0	11			
	£83,515	4	5			
Less dividends paid on July 16, 1906, and Jan. 15, 1907	68,750	0	0			
	£14,765	4	5			
Add profit for year to June 30, 1907, as per account above.	87,904	2	9			
	£102,669	7	2			
				£2,569,378	8	9

Following are the officers and directors for the current year: Chairman, C. C. Macrae; Vice-Chairman, Hon. S. Carr-Glyn; other directors, J. Dugdale, E. Hanson and E. F. North; Secretary, W. H. P. Stevens, all of London, Eng. President of the local companies, S. H. Graves, Chicago, Ill., and Vancouver, B.C.; General Manager, A. L. Berdoe, Vancouver, and Skagway, Alaska.

by a Seattle, Wash., paper as having said, Dec. 4, 1907, that construction of this branch would be commenced in the spring. We were advised in Oct., 1907, that while it was proposed to construct a branch through the Whitehorse copper fields the surveys had not been completed. At the recent annual meeting of the company in London, Eng., S. H. Graves, President of the operating companies, said to give this connection with the Whitehorse copper district "involves making a branch line of some 14 or 15 miles long, for which an act of the Canadian Parliament is required. Application has been made for this act, which it is hoped may be passed at the coming session in time to enable construction to be completed before the close of next summer." (Jan., pg. 23)

Upon the consideration of the application of the company (the Canadian charter being the British Yukon Ry.) for power to extend its line northwesterly to the Tahkeena River, coming before the Railway Committee of the House of Commons, Jan. 13, a question was raised as to whether the Board of Railway Commissioners could exercise an effective control over the rates. Of the lines owned by the company 12 miles are in Alaska —from Skagway, the seaport, to the International Boundary at Whitehorse. The Minister of Railways promised to obtain information upon the point and also whether the present rates charged by the company were satisfactory. Pending the obtaining of this information the consideration of the bill was held over.

Wolfe, Megantic and Lothiniere Ry.—See Quebec Eastern Ry

White Pass and Yukon Ry. Report.

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of freight at a reduced cost of $58,994.15. The winter stage line was carried on as usual between Whitehorse and Dawson, 167 trips being made (equivalent to 55,100 miles), carrying 38 tons of mail, 781 passengers, four tons of parcel freight (including gold dust), and 215 tons of ordinary freight.

GENERAL BALANCE SHEET.

Shares, mortgages and debentures, at cost, of local railway and navigation companies		£2,374,011	10 10
Balance due from local companies		98,899	11 9
Cash at bankers and in hand		683	18 7
Sinking fund investments (at cost)—			
£94,431 White Pass and Yukon Ry. Co., 5% consolidated first mortgage debenture stock	£87,150 18 2		
Cash in hands of trustees for investment	2,243 11 11		
		89,394	10 1
Commission paid for extension of 6% mortgage debentures (navigation bonds)	12,777 15 0		
Less one fourth written off in 1906	3,194 8 9		
	£ 9,583 6 3		
Less proportion charged against this year's profits	3,194 8 9		
		6,388	17 6
		£2,569,378	8 9
Share capital—			
Authorized 170,000 shares of £10 each	£1,700,000		
Issued 137,500 shares of £10 each fully paid		£1,375,000	0 0
5% consolidated first mortgage debenture stock—			
Authorized	£750,000		
Issued		746,702	0 0

four journal boxes, Westinghouse air brakes, Latrobe steel couplers.

The White Pass and Yukon Ry. during the financial year of 1906, the report of which has recently been issued, sold one locomotive to the Klondyke Mines Ry. and one to the Tanana Mines Ry. It also built seven box cars, five stock cars and 10 flat cars, and repaired two caboose (reported dismantled in 1905) at its Skagway shops.

The Intercolonial Ry., between Dec. 18, 1907, and Jan. 15, received the following

February 1908

It is expected that about five miles of track will be completed early in Feb.

J. L. Englehart, Chairman of the Commission, stated Jan. 18, that the line would be completed to the point of junction with the route of the G.T. Pacific Ry. by the end of the current year. This is a distance of 42 miles from the present end of steel. It will be a difficult piece of road to construct because there is a good deal of muskeg, and there will be several heavy cuts to make. There is no rock work on the section. The only difficulty feared is a wet season, which will retard construction considerably. (Jan., pg. 23).

Trains were reported to be running to Matheson, 67 miles north of Englehart, or 205 miles from North Bay, where the line makes connections with the C.P.R. and G.T.R. At Englehart the roundhouse, machine shops and coal chutes have been completed.

The Kerr Lake branch is expected to be opened for traffic Feb. 15. The branch starts from the main line about 1½ miles south of Cobalt, and extends for about 5¼ miles to Kerr Lake, serving a number of mining properties.

Thessalon and Northern Ry.—A deputation consisting of A. E. Dyment, A. A. Burke, J. B. Dobie, H. Appleton, of Thessalon, Ont., and W. Greene, of Marquette, Mich., waited on the Minister of Railways at Ottawa, Jan. 10, to ask Government aid towards the construction of this projected railway. The company was incorporated last session of the Ontario Legislature to construct a line from the C.P.R. Algoma branch southeasterly to Thessalon and northeasterly to the Mississagua River. The intention of the company is to construct a line ultimately to the C.P.R. transcontinental line. The Minister of Railways promised consideration of the proposal, favorably commenting on the line southerly to Thessalon. (Mar., 1907, pg. 163).

Trans-Canada Ry.—Application is being made at the current session of the Dominion Parliament for an act extending the time for the commencement and completion of this projected railway. The notice is signed by L. G. Scott, acting Secretary. This project is one in which a number of the directors and officers of the Quebec and Lake St. John Ry. were interested. Some surveys were made from Roberval to James Bay, and some grading has been done westerly from that point. (June, 1905, pg. 245).

Western Alberta Ry.—The Dominion Parliament is being asked at its current session to pass an act continuing and extending the powers conferred upon the W.A.R. Co., by the act of 1905, and extending the time for the commencement and completion of the projected railway. A. H. Beaton, Toronto, is solicitor for the company.

The company was originally incorporated by the Dominion Parliament in 1898, and a subsidy was voted in the following year. In 1900, 1903, and 1905, acts were passed extending the time for construction, and a renewal of the subsidy was voted in 1904. The act of 1905 gave the company power to enter into agreements for amalgamation, etc., with the Alberta Ry. and Irrigation Co. The railway authorized to be constructed is from the International Boundary at some point west of range 20 west of the 4th principal meridian, northwesterly through the Old Man valley, past Canmore and Anthracite, to the headquarters of the North Saskatchewan River, thence to the easterly base of the Rocky Mountains.

White Pass and Yukon Ry.—United States papers state that construction is progressing on a branch leading to the Whitehorse copper fields, two miles of grading having been completed, and 1½ miles of track laid. A. L. Berdoe, General Manager, was quoted by a Seattle, Wash., paper as having said, Dec. 4, 1907, that construction of this branch would be commenced in the spring. We were advised in Oct., 1907, that while it was proposed to construct a branch through the Whitehorse copper fields the surveys had not been completed. At the recent annual meeting of the company in London, Eng., S. H. Graves, President of the operating companies, said to give this connection with the Whitehorse copper district "involves making a branch line of some 14 or 15 miles long, for which an act of the Canadian Parliament is required. Application has been made for this act, which it is hoped may be passed at the coming session in time to enable construction to be completed before the close of next summer." (Jan., pg. 23).

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GENERAL BALANCE SHEET.

Shares, mortgages and debentures, at cost, of local railway and navigation companies				£1,374,015	19	10
Balance due from local companies				98,899	11	9
Cash at bankers and in hand				683	18	7
Sinking fund investments (at cost)— £94,431 White Pass and Yukon Ry Co., 5% consolidated first mortgage debenture stock	£87,150	19	2			
Cash in hands of trustees for investment	2,243	12	11			
				89,394	10	1
Commission paid for extension of 6% mortgage debenture (redemption bonds)	12,272	18	0			
Less one-fourth written off in 1906	3,194	8	9			
	£ 9,583	6	3			
Less proportion charged against this year's profits	3,194	8	9			
				6,388	17	6
				£2,569,378	8	9
Share capital— Authorized 170,000 shares of £10 each	£1,700,0	0	0			
Issued 137,500 shares of £10 each fully paid				£1,375,000	0	0
5% consolidated first mortgage debenture stock— Authorized	£750,000					
Issued				746,702	0	0
6% mortgage debentures (redemption bonds), authorized and issued				255,555	0	0
Sundry creditors				57	11	6
Sinking fund— As per last balance sheet	£98,791	14	9			
Amount set aside out of profits for year ended June 30, 1906, in accordance with terms of agreement dated Aug. 22, 1902	16,169	0	11			
Interest on sinking fund investments to June 30, 1907	4,433	15	8			
				89,394	10	1
Profit and loss account— Balance of profit per balance sheet at June 30, 1906	£99,684	5	4			
Less amount carried to sinking fund	16,169	0	11			
	£83,515	4	5			
Less dividends paid on July 15, 1906, and Jan. 15, 1907	68,750	0	0			
	£14,765	4	5			
Add profit for year to June 30, 1907, as per account above	87,904	2	9			
	£102,669	7	2			
				£2,569,378	8	9

Following are the officers and directors for the current year: Chairman, C. C. Macrae; Vice-Chairman, Hon. S. Carr-Glyn; other directors, J. Dugdale, E. Hanson and E. F. North; Secretary, W. H. P. Stevens, all of London, Eng. President of the local companies, S. H. Graves, Chicago, Ill., and Vancouver, B.C.; General Manager, A. L. Berdoe, Vancouver, and Skagway, Alaska.

February 1908

Vancouver, Westminster and Yukon Ry.—Plans have been filed in the registry office at Vancouver, B.C., showing the company's proposals for water front terminals. A frontage of nearly a mile in length has been secured, and the plans show large wharves for ocean-going vessels, with a railway line skirting the east end of False Creek along Raymond Avenue to Burrard Inlet. Notice of expropriation proceedings has not been filed.

The survey of the projected line from Vancouver northerly is reported completed as far as Squamish, and arrangements have been made for the construction of a bridge across the Second Narrows. Press reports from Vancouver state that it is expected to let contracts for the construction of the first 40 miles early in Jan. (July, pg. 381).

White Pass and Yukon Ry.—The plans under consideration for the betterment of the line include the elimination of wooden bridges and the substitution of gravel fills. Where necessary these are made by the construction of concrete walls to hold the gravel in place. Some improvements in curvature are also contemplated, but it is not intended to do very much in this way until the bridge work has been renewed. (June, pg. 327).

Winnipeg and Galveston Ry.—This company has filed an amendment to its charter in Oklahoma increasing the capital stock to $60,000,000. The road is projected from Winnipeg, Man., to Galveston, Tex., and the route in Oklahoma is through the counties of Grant, Garfield, Logan, Kingfisher, Cleveland and Pottawatomie. The directors are: A. H. McMahon, Wakita, Okla.; W. M. McGibbon, Gibbon, Okla.; W. O. Jones, Wakita, Okla.; J. A. Koontz, Hutchinson, Kan.; T. C. Spaulding and H. V. Goodrich, Kansas City; J. H. Ledgerwood, Denver; Grant Dale, A. G. C. Bierer, Robert Sohlberg and B. F. Hegler, Jr., Guthrie, Okla.

Winnipeg Terminals.—Notice is given by

December 1906

city.

White Pass and Yukon Ry.—It was reported from Whitehorse, Yukon, April 2, light construction had been started upon the projected spur through the copper district. A U.S. press report says that two miles of grading had been completed and 1.50 miles of track had been laid when construction had to be suspended in 1907, owing to cold weather. This report is apparently a repetition of a previous report to which reference was made in our Feb. issue, pg. 101. (April, pg. 247.)

Winnipeg City Power Plant.—C. B. Smith,

June 1908

Coal Companies Rd. (Nov., 1907, pg. 831).

White Pass and Yukon Ry.—Application is being made at the current session of the Dominion Parliament for an act authorizing the British Yukon Ry. Co. (the Canadian title of the W. P. and Y. R. Co.) to construct an extension of the existing line of railway from near milepost 106, south of Whitehorse, Yukon, northwesterly to the Tahkeena River, a distance of about 15 miles. The line is to be constructed within five years, and bonds or other securities not exceeding £6,000 a mile of the new line may be issued.

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Winnipeg City Power Plant.—Track has

February 1908

STOCK, JUNE 30, 1906.

Helen mine ore	66,726 tons.	38,063 tons
Pig iron	6,618 "	7,450 "
Rails	11,262 "	8,768 "
Ground wood	2,347 "	487 "
Scrap	4,871 "	10,810 "
Lumber	1,963,121 feet.	4,270,550 feet

Subsidiary companies owned by the Lake Superior Corporation: Algoma Central & Hudson Bay Railway Co.; Manitoulin & North Shore Railway Co.; Algoma Commercial Co., Ltd.; Algoma Iron Works; British-America Express Co.; Algoma Steel Co., Ltd.; Lake Superior Power Co.; International Transit Co.; Trans. St. Mary's Traction Co.; Tagoma Water & Light Co.; Sault Ste Marie Pulp & Paper Co.

TRANSPORTATION APPOINTMENTS.

The following information has come to hand since page 731 of this issue went to press:

Canadian Northern Ry.—G. Stephen, heretofore chief clerk freight branch, General Traffic Manager's office, has been appointed Assistant General Freight Agent. Office, Winnipeg, Man.

C. W. Cooper, heretofore chief clerk passenger branch, General Traffic Manager's office, has been appointed Assistant General Passenger Agent. Office, Winnipeg, Man.

Canadian Pacific Ry. F. B. Zercher has been appointed foreman passenger car shops, Angus, Montreal, vice C. F. Rydberg, promoted to be Superintendent.

A. C. Harshaw has been appointed Trainmaster at Midhurst, Ont., with jurisdiction from Bolton to Craighurst, on the Toronto-Sudbury branch.

Quebec, Montreal and Southern Ry.—W. C. C. Mehan, formerly Trainmaster Ottawa Division G.T.R., has been appointed Superintendent Quebec, Montreal and Southern Ry., with office at Montreal.

Following is a list of the official staff as recently reorganized: General Manager, C. B. Hibbard; Chief Engineer, F. D. Anthony; Superintendent, W. C. C. Mehan; Purchasing Agent, R. A. Trudeau; Travelling Freight and Passenger Agent, N. J. Ferguson; Car Accountant, C. S. Papps. All of the foregoing officials are located at Montreal. Master Mechanic, D. L. Jones, Sorel, Que.

Unconfirmed press reports state that D. E. Brown, General Agent C.P.R. for China, Japan, etc., will retire from that position shortly, owing to the climate not suiting his health.

J. McKeon, for about 25 years in the service of the Niagara Navigation Co., and latterly chief officer of the Chippewa, died at his home in Toronto, Nov. 17, as the result of a paralytic seizure.

J. H. Muir, Secretary-Treasurer G.T.R lines west of Detroit and St. Clair Rivers, died at Detroit, Mich., Nov. 27, aged 71. He was born at Kilmarnock, Ayrshire, Scotland, Nov. 12, 1835, and entered railway service in 1850, since which he has been consecutively to 1855 clerk mechanical, parcels (express) audit and Treasurer's departments, Glasgow and Southwestern Ry., Scotland; 1855 to 1858, clerk, bookkeeper and cashier freight office Great Western Ry. of Canada, Hamilton, Ont.; 1858 to 1866, chief clerk audit department, cashier and auditor Detroit, Grand Haven and Milwaukee Ry.; 1866 to his death, Secretary and Treasurer Detroit, Grand Haven and Milwaukee Ry., and Secretary Treasurer or Treasurer of the other G.T.R. subsidiary lines west of Detroit and St. Clair Rivers. He was a brother of W. J. Muir, who was Superintendent of the old Great Western Ry., and brother-in-law of Capt. J. B. Fairgrieve, of Hamilton, Ont. He was buried at Hamilton.

White Pass and Yukon Route.

The report of the directors, submitted at the annual meeting held in London, Eng., Nov. 12, included the accounts for the year ended June 30. These accounts cover the results of the operations of the local companies (all of whose capital is owned by this company) for their financial year, which ended Dec. 31, 1905. The profit and loss account, after providing for debenture stock and debenture interest and all charges, shows a net profit for the year of £88,140 0s. 1d. Adding to this amount £11,544 5s. 3d. carried forward from the preceding year, there is shown to be a balance at the credit of profit and loss in the balance sheet of £99,684 5s. 4d. Out of this, £16,169 0s. 11d. has been spent in the purchase of the full sinking fund instalment of £16,586 of stock due this year, and an interim dividend of 4s. a share, which absorbed £27,500, was paid July 14. The directors recommend that a final dividend of 6s. per share, absorbing £41,250, be declared, payable Jan. 15, 1907, making 5% for the year, leaving to be carried forward £14,765 4s. 5d. During the year covered by the accounts a special resolution was passed by the holders of the 6% mortgage debentures (navigation bonds), under which the term of such debentures has been extended from Dec. 31, 1911, to Jan. 1, 1930, it being provided that the company shall not redeem such debentures before the new due date, except at a premium of 5%. The only cost to the company of effecting this advantageous extension was the payment of a commission of 5% to the commercial managers for underwriting and for carrying the business through, including all expenses and legal charges connected therewith. Of this commission one-fourth has been charged against the present year's profits, the balance being chargeable by equal instalments over the next three years.

BALANCE SHEET, JUNE 30.

Shares, mortgages and debentures, at cost, of the local railway and navigation companies			£2,374,011	10	10
The local companies— Balance due from them			48,068	10	9
Cash at bankers and in hand			29,150	6	8
Sinking fund investments (at cost)— £73,904 White Pass and Yukon Ry. Co. 5% consolidated first mortgage debenture stock	£67,036	0 8			
Cash in hands of trustees for investment	1,755	13 1	68,791	13	9
Commission paid for extension of 6% mortgage debentures (navigation bonds)	12,777	15 0			
Of which one fourth has been charged against this year's profits	3,194	8 9	9,583	6	3
White Pass and Yukon Ry. Co., Limited, consolidated first mortgage debenture stock bought for sinking fund, 1906			16,169	0	11
			£2,545,774	9	2
Share capital— Authorized 170,000 shares of £10 each	£1,700,000				
Issued 137,500 shares of £10 each fully paid			£1,375,000	0	0
5% consolidated first mortgage debenture stock— Authorized	£750,000				
Issued			746,702	0	0
6% mortgage debentures (navigation bonds)— Authorized and issued			255,555	0	0
Sundry creditors			41	10	1
Sinking Fund— As per last balance sheet	£49,329	13 4			
Amount set aside out of profits for year ended June 30, 1905, in accordance with terms of agreement, dated Apr. 22, 1902	16,002	6 2			
Interest on sinking fund investments to June 30, 1906	3,468	14 3	68,791	13	9
			£2,545,774	9	2

Carried forward			68,791	13	9
Profit and loss account			99,684	5	4
Balance of profit per balance sheet at June 30, 1905	£96,296	11 5			
Less amount carried to sinking fund (see above)	16,002	6 2			
	80,294	5 3			
Less dividends paid July 15, 1905, and Jan. 15, 1906	68,750	0 0			
	11,544	5 3			
Add profit for year to June 30, 1906, as per acc't above	88,140	0 1			
	£99,684	5 4			
			£2,545,774	9	2

PROFIT AND LOSS ACCOUNT.

Interest on securities of local companies paid and accrued to date			£52,944	9	0
Dividends on shares of local companies			98,478	19	2
Interest on bank account, etc.			71	11	8
Interest on investment in consolidated first mortgage debenture stock of the company			393	18	4
Transfer fees, etc.			132	5	0
			£152,021	3	2
Interest on 5% consolidated first mortgage debenture stock			£37,335	2	0
Interest on 6% mortgage debentures (navigation bonds)			15,333	6	0
Directors' and trustees' fees			2,160	0	0
Management and London charges			3,762	16	1
Legal expenses and stamps			69	12	6
Audit fee to June 30, 1905			78	15	0
Commission for extension of 6% mortgage debentures (navigation bonds)	£12,777	15 0			
Of which there is charged against this year's profits, one-fourth			3,194	8	9
Income tax			1,497	3	5
Loss in exchange			449	19	4
Profit carried to balance sheet			88,140	0	1
			£152,021	3	2

S. H. Graves, President of local companies, in his report said, in part, as follows: On the rail division we carried 14,157 passengers and 34,119 tons of revenue freight. The average haul was 74.36 miles per passenger and 107.98 miles per ton of freight, and the average load per car was 11.58 tons. The chief improvements on the railway in 1905 were the replacing of three old wooden bridges by three new steel ones, 190, 128 and 206 ft. long respectively, and of one old wooden bridge by a concrete wall; the laying of 1,080 ft. of new sidings north of the Skagway wharf siding; the extension of the track to the White Horse shipyards; the building of 1,150 ft. of permanent snow fence; the enlargement of the White Horse coal bunkers; the changing of the line at sundry places to take out curves; the taking out of the Y at Fraser and replacing it by a loop line; and repiling and extensive repairs to the White Horse wharf. The White Horse station building was destroyed by fire May 23, 1905, and rebuilt for substantially the amount of the insurance. Besides repairing our own rolling stock, we built at the Skagway shops during 1905, 26 freight cars on orders from other lines. Preliminary surveys were made in the autumn of 1905 for lines from Log Cabin and from Caribou to the Windy Arm district. The roadbed, rolling stock, shop and other equipment, wharves and everything else connected with the railway, have been kept up in first-class condition and repair. In doing this work, additional gravel ballast to the extent of 55,398 cubic yards was worked into the main line, and 18,600 new sleepers and 23,666 steel tie plates were laid in the main line. Notwithstanding the outlay on this work, the operating expenses of the rail division for 1905 show a decrease of $25,337.44.

The company's fleet in 1905 carried 7,671 passengers and 29,309 tons of revenue freight. We operated 12 steamers and seven barges on the river and lakes, and held seven steamers in reserve, and used one barge, Hootalinqua, as coal depot. The first boat left Hootalin-

December 1906

equipment to a mining company in Washington state.

The Klondike Mines Ry.'s equipment consists of two locomotives bought from the White Pass and Yukon Rd., 15 box cars, 15 flat cars and two passenger cars. It is not intended to buy any new equipment this

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menced and completed.

White Pass and Yukon Ry. The preliminary surveys recently made in the Windy Arm district were both made from the north and south end, with the object of ascertaining what it would cost to construct a line through should business warrant it. We have been officially advised that at present there is nothing to warrant constructing a line, but what may be done in the future is problematical. (Dec., 1905, pg. 569.)

February 1906

Coil journal boxes, Westinghouse air brakes, Latrobe steel couplers.

The White Pass and Yukon Ry. during the financial year of 1906, the report of which has recently been issued, sold one locomotive to the Klondyke Mines Ry. and one to the Tanana Mines Ry. It also built seven box cars, five stock cars and 10 flat cars, and repaired two cabooses (reported dismantled in 1906) at its Skagway shops.

The Intercolonial Ry., between Dec. 18, 1907, and Jan. 15, received the following

February 1908

It is expected that about five miles of track will be completed early in Feb.

J. L. Englehart, Chairman of the Commission, stated Jan. 18, that the line would be completed to the point of junction with the route of the G.T. Pacific Ry. by the end of the current year. This is a distance of 42 miles from the present end of steel. It will be a difficult piece of road to construct because there is a good deal of muskeg, and there will be several heavy cuts to make. There is no rock work on the section. The only difficulty feared is a wet season, which will retard construction considerably. (Jan., pg. 23).

Trains were reported to be running to Matheson, 67 miles north of Englehart, or 205 miles from North Bay, where the line makes connections with the C.P.R. and G.T.R. At Englehart the roundhouse, machine shops and coal chutes have been completed.

The Kerr Lake branch is expected to be opened for traffic Feb. 15. The branch starts from the main line about 1½ miles south of Cobalt, and extends for about 5½ miles to Kerr Lake, serving a number of mining properties.

Thessalon and Northern Ry.—A deputation consisting of A. E. Dyment, A. A. Burke, J. B. Dobie, H. Appleton, of Thessalon, Ont., and W. Greene, of Marquette, Mich., waited on the Minister of Railways at Ottawa, Jan. 10, to ask Government aid towards the construction of this projected railway. The company was incorporated last session of the Ontario Legislature to construct a line from the C.P.R. Algoma branch southeasterly to Thessalon and northeasterly to the Mississagua River. The intention of the company is to construct a line ultimately to the C.P.R. transcontinental line. The Minister of Railways promised consideration of the proposal, favorably commenting on the line southerly to Thessalon. (Mar., 1907, pg. 163).

Trans-Canada Ry.—Application is being made at the current session of the Dominion Parliament for an act extending the time for the commencement and completion of this projected railway. The notice is signed by L. G. Scott, acting Secretary. This project is one in which a number of the directors and officers of the Quebec and Lake St. John Ry. were interested. Some surveys were made from Roberval to James Bay, and some grading has been done westerly from that point. (June, 1905, pg. 245).

Western Alberta Ry.—The Dominion Parliament is being asked at its current session to pass an act continuing and extending the powers conferred upon the W.A.R. Co., by the act of 1905, and extending the time for the commencement and completion of the projected railway. A. H. Beaton, Toronto, is solicitor for the company.

The company was originally incorporated by the Dominion Parliament in 1898, and a subsidy was voted in the following year. In 1900, 1903, and 1905, acts were passed extending the time for construction, and a renewal of the subsidy was voted in 1904. The act of 1905 gave the company power to enter into agreements for amalgamation, etc., with the Alberta Ry. and Irrigation Co. The railway authorized to be constructed is from the International Boundary at some point west of range 20 west of the 4th principal meridian, northwesterly through the Old Man valley, past Canmore and Anthracite, to the headquarters of the North Saskatchewan River, thence to the easterly base of the Rocky Mountains.

White Pass and Yukon Ry.—United States papers state that construction is progressing on a branch leading to the Whitehorse copper fields, two miles of grading having been completed, and 1½ miles of track laid. A. L. Berdoe, General Manager, was quoted by a Seattle, Wash., paper as having said, Dec. 4, 1907, that construction of this branch would be commenced in the spring. We were advised in Oct., 1907, that while it was proposed to construct a branch through the Whitehorse copper fields the surveys had not been completed. At the recent annual meeting of the company in London, Eng., S. H. Graves, President of the operating companies, said to give this connection with the Whitehorse copper district "involves making a branch line of some 14 or 15 miles long, for which an act of the Canadian Parliament is required. Application has been made for this act, which it is hoped may be passed at the coming session in time to enable construction to be completed before the close of next summer." (Jan., pg. 23).

Upon the consideration of the application of the company (the Canadian charter being the British Yukon Ry.) for power to extend its line northwesterly to the Tahkeena River, coming before the Railway Committee of the House of Commons, Jan. 13, a question was raised as to whether the Board of Railway Commissioners could exercise an effective control over the rates. Of the lines owned by the company 12 miles are in Alaska—from Skagway, the seaport, to the International Boundary at Whitehorse. The Minister of Railways promised to obtain information upon the point and also whether the present rates charged by the company were satisfactory. Pending the obtaining of this information the consideration of the bill was held over.

Wolfe, Megantic and Lothiniere Ry.—See Quebec Eastern Ry.

White Pass and Yukon Ry. Report.

The report of the directors for the year ended June 30, 1907, includes the results of the operations of the local companies (all of whose capital is owned by the White Pass and Yukon Ry. Co.) for their financial year, which ended Dec. 31, 1906. The profit and loss account, after providing for debenture stock and debenture interest and all charges, showed a net profit of £87,904 2s. 9d., to which was added the balance of £14,765 4s. 5d. brought forward from the previous year, making a total of £102,669 7s. 2d. Out of this a full sinking fund instalment of £16,586 had been provided, and an interim dividend of 4s. per share, absorbing £27,500, paid in July. A further dividend of 6s. per share, absorbing £41,250, was recommended to be paid Jan. 15, leaving a balance of £17,335 7s. 2d. to be carried forward.

The report of S. H. Graves, President of the local companies, gave information as to the traffic over the company's railway, and other lines. During 1906 there were carried on the railway 13,720 passengers and 32,204 tons of freight; the average haul was 79.60 miles per passenger, and 165.94 miles per ton of freight, while the average load per car was 11.94 tons. The operating expenses of the mill division show a decrease of $33,044.24 as compared with 1905, and of $58,381.68 as compared with 1904. The company's fleet carried 8,262 passengers and 27,574 tons of revenue freight. The company operated 11 steamers and nine barges on the river and lakes, and held eight steamers and one barge in reserve. Two barges were built at the company's Whitehorse shipyards during the year, and some improvements were made at the company's Dawson shipyard. The operating expenses show a reduction of $36,153.80 as compared with 1905. "A better idea of the saving," said Mr. Graves, "is gained by comparison with the results of 1904, which shows that in 1906 we carried 1,413 more passengers and 1,508 more tons of freight at a reduced cost of $58,904.15. The winter stage line was carried on as usual between Whitehorse and Dawson, 167 trips being made (equivalent to 55,100 miles), carrying 38 tons of mail, 781 passengers, four tons of parcel freight (including gold dust), and 245 tons of ordinary freight.

GENERAL BALANCE SHEET.

Shares, mortgages and debentures, at cost, of local railway and navigation companies				£2,374,013	10	10
Balance due from local companies				96,899	11	0
Cash at bankers and in hand				683	10	7
Sinking fund investments (at cost)—						
£94,431 White Pass and Yukon Ry Co. 5% consolidated first mortgage debenture stock	£87,150	10	2			
Cash in hands of trustees for investment	2,243	11	11			
				89,394	10	1
Commission paid for extension of 6% mortgage debenture (navigation bonds)	12,777	15	0			
Less one-fourth written off in 1906	3,194	8	0			
	£ 9,583	6	3			
Less proportion charged against this year's profits	3,194	8	9			
				6,388	17	6
				£2,569,378	8	9
Share capital—						
Authorized 170,000 shares of £10 each	£1,700,000					
Issued 137,500 shares of £10 each fully paid				£1,375,000	0	0
5% consolidated first mortgage debenture stock—						
Authorized	£750,000					
Issued				746,702	0	0
6% mortgage debentures (navigation bonds) authorized and issued				255,555	0	0
Sundry creditors				57	11	6
Sinking fund—						
As per last balance sheet	£68,791	14	9			
Amount set aside out of profits for year ended June 30, 1906, in accordance with terms of agreement dated Aug. 23, 1902	16,587	0	11			
Interest on sinking fund investments to June 30, 1907	4,433	15	5			
				89,394	10	1
Profit and loss account—				102,669	7	2
Balance of profit per balance sheet at June 30, 1906	£99,684	3	4			
Less amount carried to sinking fund	16,169	9	11			
	£83,514	4	5			
Less dividends paid on July 15, 1906, and Jan. 15, 1907	68,750	0	0			
	£14,765	4	5			
Add profit for year to June 30, 1907, as per account above	87,904	2	9			
	£102,669	7	2			
				£2,569,378	8	9

Following are the officers and directors for the current year: Chairman, C. C. Macrae; Vice-Chairman, Hon. S. Carr-Glyn; other directors, J. Dugdale, E. Hanson and E. F. North; Secretary, W. H. P. Stevens, all of London, Eng. President of the local companies, S. H. Graves, Chicago, Ill., and Vancouver, B.C.; General Manager, A. L. Berdoe, Vancouver, and Skagway, Alaska.

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with equivalent weights to her working load on board, she made her contract speed, and developed the power necessary for icebreaking.

Transportation to the Yukon.

F. C. Wade, Crown Prosecutor for Yukon, says in reference to the Yukon:—In the last four years a remarkable change has occurred in almost everything affecting the country, particularly the methods of transportation, mining and commercial development. When the first administration party proceeded to the Yukon in 1897 there was no Canadian system of ocean steamers to Skagway, such as exist at the present time. We travelled to that point on the Quadra, a Government steamer, and had to scale the Chilcoot pass, while our supplies in the main were packed over the White pass by mules and oxen. Now the traveller leaving Vancouver can take passage on the magnificent ocean steamers of the Canadian Pacific Navigation Co. or some other Canadian company and proceed to Skagway with as much pleasure as could be enjoyed on a yachting trip in the Mediterranean or in crossing the Atlantic in one of the ocean greyhounds. The steamers are well officered and beautifully appointed, and even

from a tourist's point of view no greater pleasure could be desired than a sail by the inside passage from Vancouver to the foot of the Chilcoot and White passes. Instead of scaling mountain passes as before, the traveller who leaves the Canadian steamship at Skagway enters the train of the White Pass and Yukon Ry. at Skagway and is rapidly carried to Whitehorse and landed on the gangplank of one of the beautiful steamers travelling from that point to Dawson. You can travel now in your smoking jacket and slippers, instead of being encumbered with spiked boots, rubber hip boots, alpenstocks, shoulder straps and packs, and all the other paraphernalia which went with the troubles experienced in 1897 and 1898. The whole journey can be made in six or seven days instead of in several months, as used to be the case. Indeed, the time is not far distant when the trip from Vancouver to Skagway and thence down the Lewis and Yukon rivers to Dawson, and past the southern Alaskan point to the Bering sea, will rank as one of the most delightful pastimes which the tourist could enjoy instead of being a succession of the most extreme hardships.

The metamorphosis effected in the transportation of freight has been quite as startling. It is no longer necessary to re-enact the scenes of 1897, when 3,700 horses perished on the White pass in the transportation of

1, & in rock of ¾ to 1. In hard-pan cuts the slopes have been executed to suit the stability of the material. All excavations have been excellently made & present a thoroughly finished appearance, except where ballasting material has been borrowed.

There are two places only at which timber crib-work has been erected for the purpose of retaining embankments. The rock in the immediate vicinity is decayed, & this is the reason given for their construction. They occur at mile 47 & are of excellent design. They are each 60 ft. long & from 12 to 15 ft. high. The plan of these structures shows inside & outside batter of walls to be ¼ to 1. Each crib is 7 by 7 ft. inside horizontal measurement, & consists of 12 in. round logs dovetailed & box-jointed, & secured with tree-nails 2 in. diam. & 20 ins. long, & with wrought iron drift-bolts ¾ in. diam. & 22 ins. long. Each drift-bolt penetrates through one log & at least 6 ins. into the log below.

Rock slopes occur on the steep side-hills of Arrow Lake, Bull-Dog Creek, McRae Creek, & Christina Lake. There are 29 in all, varying from 30 to 270 ft. in length, & from 10 to 40 ft. in height. Combined they cover a total length of 2,640 ft. The rear wall is vertical, & the front wall batters at the rate of 1 in 3. The top of the wall is 3 ft. wide. The filling behind the wall is broken rock. In all cases the foundations are on solid rock. The stones backs are a necessity & should be built without delay. Owing to the length of time required to construct the long tunnel at mile 22, & the desire of the railway company to open the railway for traffic, a temporary switchback was constructed over the mountain at that point. It consisted of 10 switches, 5 on the east slope & 5 on the west slope. The total rise from the east portal of the tunnel was 507 ft., & from the west portal 403 ft. The grade both ascending & descending was uniformly 4 per 100, & curves varied up to 22 degrees. The total length of the switchback from main line to main line was 5.12 miles, & the time occupied in traversing it by trains was one hour. The steep grade, & the temporary character of the work, necessitated extreme care on the part of the officials operating it.

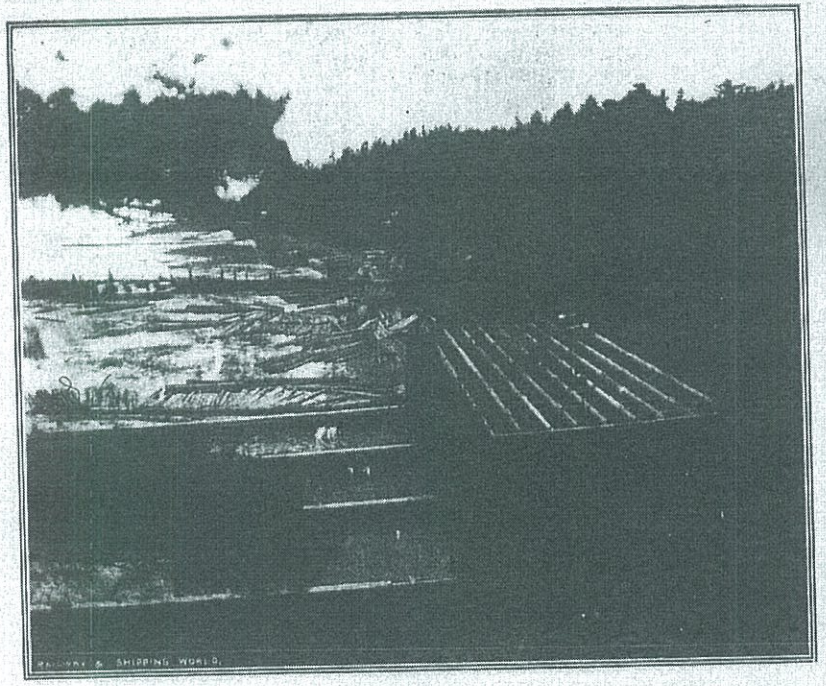
From West Robson to mile 5.4 & from mile 50.5 to mile 67 at Grand Forks there are no trestles. Between miles 5.4 & 50.5 trestles have been constructed to a most unusual extent. The location of the line in this respect has been made with an undue regard to economy, & should the railway become a trunk line many of these structures must be eliminated. Every trestle is an element of danger, & the only excuse in the present instance is the immense cost of obtaining a more solid road-bed by throwing the alignment further into the side hill. There are in all 49 timber trestles, covering a distance of 13,140 ft. or 5½

W.P. & Y.R. Cantilever Bridge.

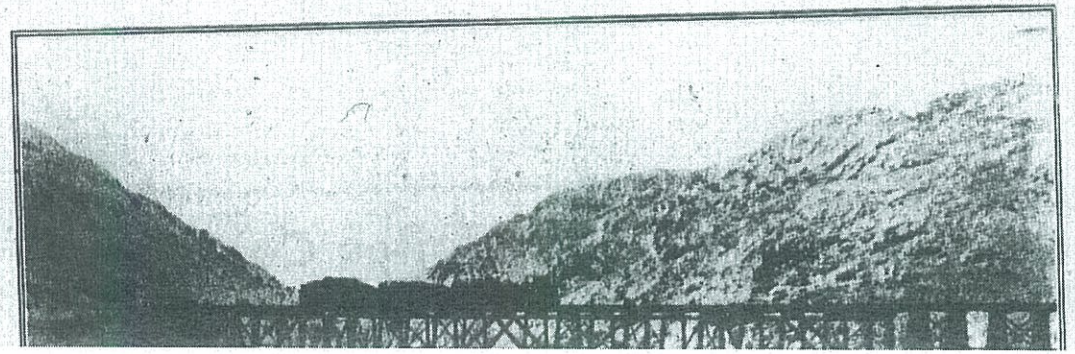
At the time of the construction of the White Pass and Yukon Ry. the topography of the country necessitated the construction of a switchback about two miles to the south of the summit of White Pass, for the purpose of carrying the line around a deep canyon at that point. The plans contemplated the construction of a bridge, but the desire to get the road quickly completed led to the postponement of the bridge and the building of the more-quickly-constructed switchback. Although the latter construction enabled the road to be opened more quickly than it could otherwise have been, the many inconveniences of operation and the expense of maintenance determined the company to put in the bridge with as little delay as possible. The illustration on this page shows the cantilever with which the canyon at this point is spanned. The clear span of the bridge is 240 ft., and the total length of the cantilever structure is 400 ft. At each end of the bridge proper is a wooden trestle, the total length of the crossing being 850 ft. At the center of the bridge the rails are 275 ft. above the bottom of the canyon. Considerable difficulty was experienced in building the concrete foundation piers of the cantilever, which had to be built on the steep, sloping sides of the canyon; and in excavating the foundations a large amount of ice was encountered in the crevices of the rocks, all of which had to be carefully removed. The work was commenced in Aug., 1990. The cantilever system of construction was adopted because of the difficulty and cost of erecting falsework over a canyon of such great depth. The shore arms were erected upon falsework in the customary way, and then the outer arms, bridging the canyon were constructed on the overhanging system, a movable traveler, carried on the deck of the completed structure, serving to handle the members of the bridge and swing them into position.

A test of the bridge was made in Jan. last, with a train which consisted of two locomotives and five carloads of steel (there being about 15 tons on each car), a caboose and a passenger coach. A rotary snowplow and two of the heaviest engines of the road were also run over the structure. In carrying out the test a series of level rods was placed on the floor beams, at the panel points of the bridge, and observations were taken with a level stationed on the adjoining hillside. The first test was made by pushing five carloads of rails on to the bridge, with the locomotive advanced upon the bridge only by the length of one panel. The greatest deflection of this loading was observed at the position occupied by the locomotive, where it amounted to ¼ in. In the next test the engine was run out to the center of the bridge and then across the bridge and back again, when a maximum deflection of a quarter of an inch was observed throughout the middle third of the structure. Another test was made by coupling two locomotives together. This gave a maximum deflection of ⅜ in. throughout the middle third. The next test was made with a rotary snowplow and two locomotives coupled together. This load was heavier than that of the rail train, but of the same length, and it gave a maximum deflection of ⅝ in. at the center of the bridge and ¾ in. at the third panel from the center each way.

Compared with other cantilever structures of considerable height, the W. P. & Y. R. bridge is distinguished by the fact that each cantilever is made so deep that a separate carrying tower is not required, the bottom chords of the two arms of each cantilever meeting at



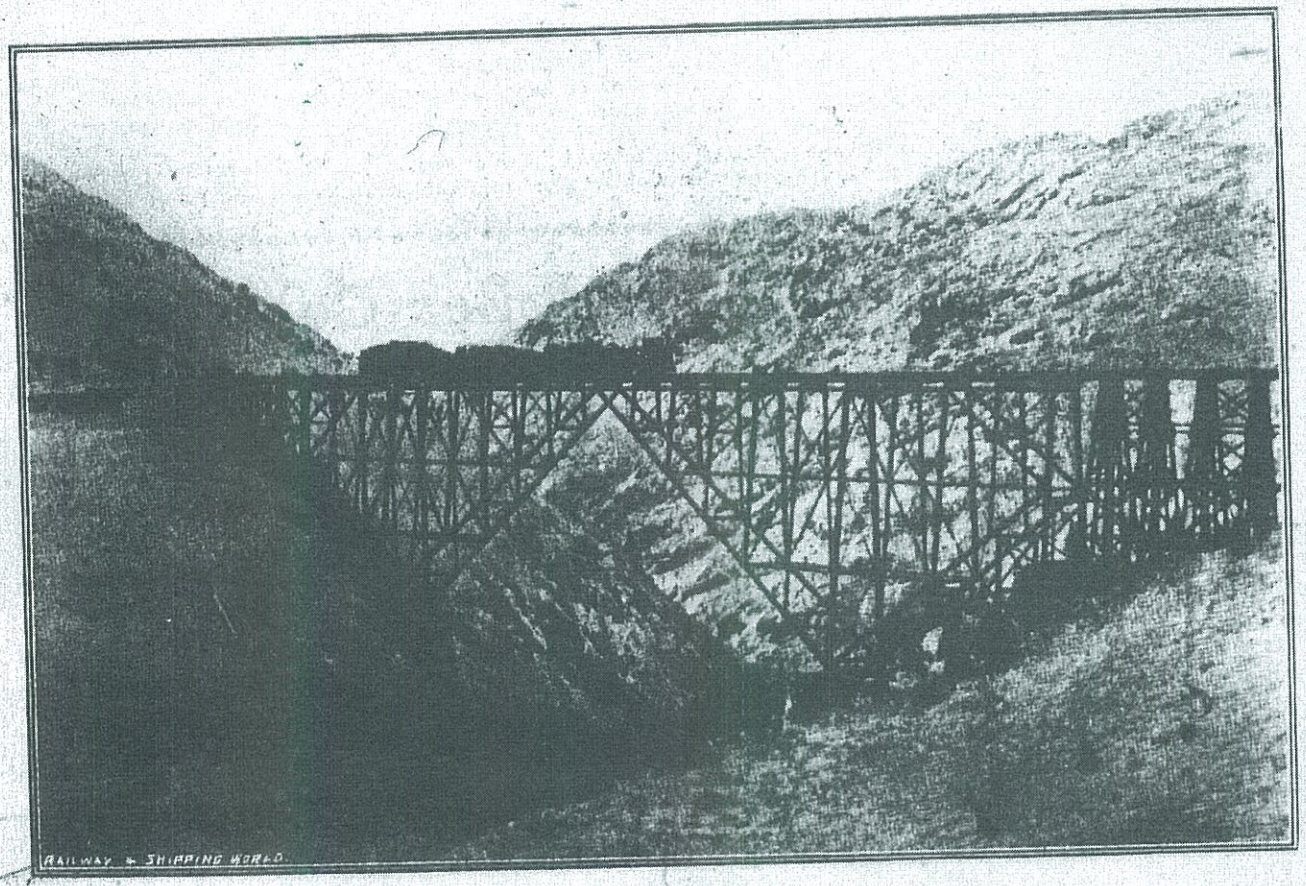
QUEBEC BRIDGE, FIG. 3.—CAISSON BEFORE LAUNCHING. SEE PG. 294.



outer arms, bridging the canyon were constructed on the overhanging system, a movable traveler, carried on the deck of the completed structure, serving to handle the members of the bridge and swing them into position.

A test of the bridge was made in Jan. last, with a train which consisted of two locomotives and five carloads of steel (there being about 15 tons on each car), a caboose and a passenger coach. A rotary snowplow and two of the heaviest engines of the road were also run over the structure. In carrying out the test a series of level rods was placed on the floor beams, at the panel points of the bridge, and observations were taken with a level stationed on the adjoining hillside. The first test was made by pushing five carloads of rails on to the bridge, with the locomotive advanced upon the bridge only by the length of one panel. The greatest deflection of this loading was observed at the position occupied by the locomotive, where it amounted to ¼ in. In the next test the engine was run out to the center of the bridge and back again, when a maximum deflection of a quarter of an inch was observed throughout the middle third of the structure. Another test was made by coupling two locomotives together. This gave a maximum deflection of ⅜ in. throughout the middle third. The next test was made with a rotary snowplow and two locomotives coupled together. This load was heavier than that of the rail train, but of the same length, and it gave a maximum deflection of ⅝ in. at the center of the bridge and ¼ in. at the third panel from the center each way.

Compared with other cantilever structures of considerable height, the W. P. & Y. R. bridge is distinguished by the fact that each cantilever is made so deep that a separate carrying tower is not required, the bottom chords of the two arms of each cantilever meeting at the foundation. This system of construction reduces the stresses on the bottom chord, and the great depth of the cantilever conduces to vertical stiffness. When the eye becomes accustomed to the design, it is by no means unpleasing, and the cost of the bridge per foot is probably somewhat cheaper, than that of a cantilever built with the customary towers and arms of less depth.



CANTILEVER BRIDGE OVER WHITE PASS CANYON, WHITE PASS AND YUKON RY.

W.P. & Y.R. Cantilever Bridge.

At the time of the construction of the White Pass and Yukon Ry. the topography of the country necessitated the construction of a switchback about two miles to the south of the summit of White Pass, for the purpose of carrying the line around a deep canyon at that point. The plans contemplated the construction of a bridge, but the desire to get the road quickly completed led to the postponement of the bridge and the building of the more-quickly-constructed switchback. Although the latter construction enabled the road to be opened more quickly than it could otherwise have been, the many inconveniences of operation and the expense of maintenance determined the company to put in the bridge with as little delay as possible. The illustration on this page shows the cantilever with which the canyon at this point is spanned. The clear span of the bridge is 240 ft., and the total length of the cantilever structure is 400 ft. At each end of the bridge proper is a wooden trestle, the total length of the crossing being 850 ft. At the center of the bridge the rails are 275 ft. above the bottom of the canyon. Considerable difficulty was experienced in building the concrete foundation piers of the cantilever, which had to be built on the steep, sloping sides of the canyon; and in excavating the foundations a large amount of ice was encountered in the crevices of the rocks, all of which had to be carefully removed. The work was commenced in Aug., 1990. The cantilever system of construction was adopted because of the difficulty and cost of erecting falsework over a canyon of such great depth. The shore arms were erected upon falsework in the customary way, and then the outer arms, bridging the canyon were constructed on the overhanging system, a movable traveler, carried on the deck of the completed structure, serving to handle the members of the bridge and swing them into position.

A test of the bridge was made in Jan. last, with a train which consisted of two locomotives and five carloads of steel (there being about 15 tons on each car), a caboose and a passenger coach. A rotary snowplow and two of the heaviest engines of the road were also run over the structure. In carrying out the test a series of level rods was placed on the floor beams, at the panel points of the bridge, and observations were taken with a level stationed on the adjoining hillside. The first test was made by pushing five carloads of rails on to the bridge, with the locomotive advanced upon the bridge only by the length of one panel. The greatest deflection of this loading was observed at the position occupied by the locomotive, where it amounted to ¼ in. In the next test the engine was run out to the center of the bridge and then across the bridge and back again, when a maximum deflection of a quarter of an inch was observed throughout the middle third of the structure. Another test was made by coupling two locomotives together. This gave a maximum deflection of ⅜ in. throughout the middle third. The next test was made with a rotary snowplow and two locomotives coupled together. This load was heavier than that of the rail train, but of the same length, and it gave a maximum deflection of ⅜ in. at the center of the bridge and ¾ in. at the third panel from the center each way.

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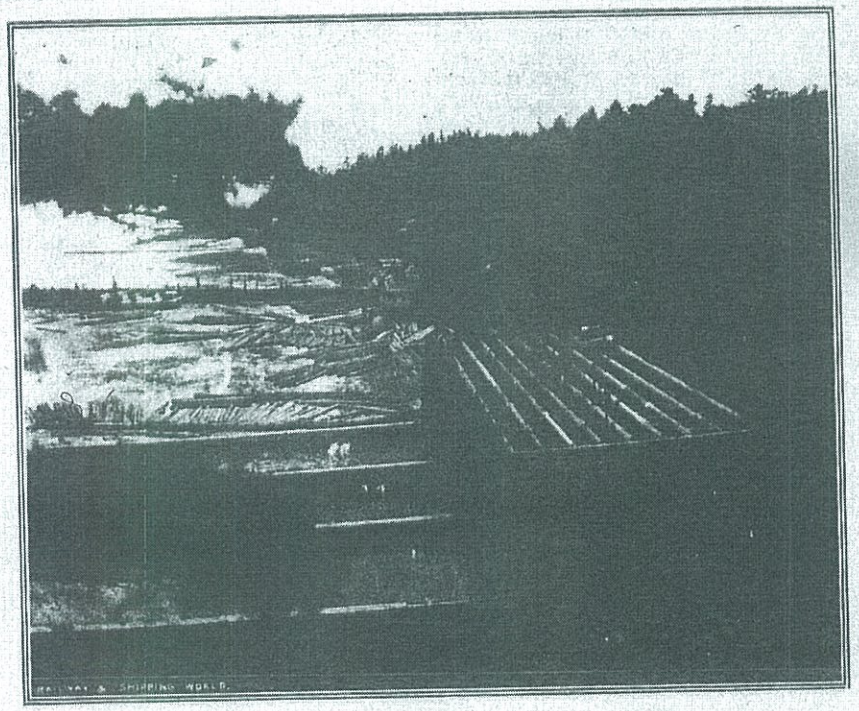
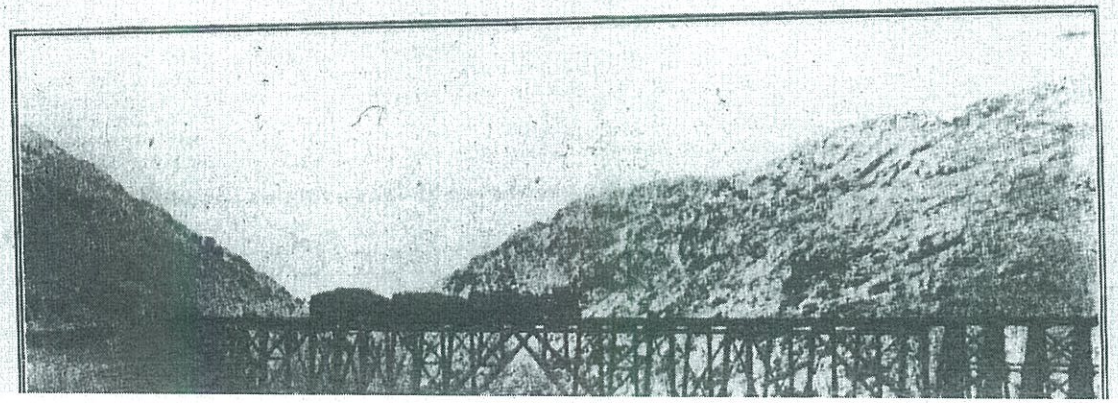


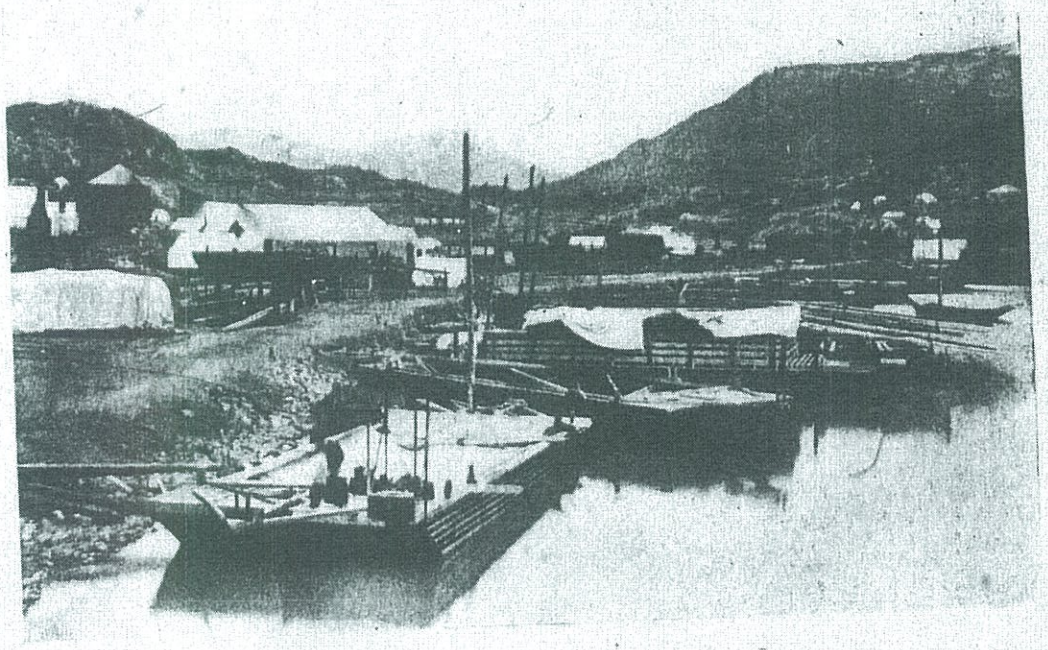
QUEBEC BRIDGE, FIG. 3. CAISSON BEFORE LAUNCHING. SEE PG. 294.



aimo. When the Klondike business began she was rebuilt and refitted with new boilers, etc., at a cost of $45,000, and ran to Skagway until she was wrecked.

P. Mercier, C.E., of the Dominion Government engineering department, with headquarters at White Horse, Yukon, when in Montreal recently said the department has been engaged for some time time in clearing the rivers of the different obstructions and providing routes along the different creeks and streams. Two hundred boulders have been removed from Thirty Mile river, some of them weiging as much as five tons. Dredging would be exceedingly expensive. Navigation between White Horse and Dawson, 450 miles, is now quite secure. Twenty-eight steamers, 18 of which belong to the British Yukon Navigation Co., are plying between the two points.

The Canadian Pacific Navigation Co. has in contemplation the construction of a new steamer for the gulf ferry service between Vancouver and Victoria. The vessel will be built of steel, the frames and plates will be prepared in the east and shipped to Vancouver where they will be put together. The new boat will have a length of 280 ft., with a breadth of about 29 ft. over the paddle guards, will have three decks, and will be built for speed as well as for comfort. The engines will also be built in the east and shipped to Vancouver for erection on board. Figures have been asked for from eastern builders, but the contract has not yet been placed. It is, however, expected that it will go to the Polson Iron Works, Toronto.

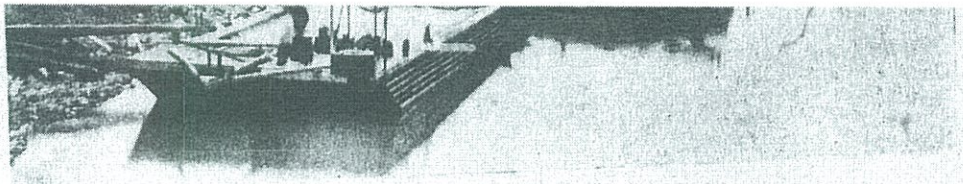


SCOWS LOADING AT BENNETT, B.C., FOR DAWSON, YUKON.

One of the most far-reaching marine transportation deals in the history of the Pacific Coast, involving a consideration of about $1,000,000, has about been consummated, according to the Seattle Post-Intelligencer. When completed the entire tonnage owned by Dodwell & Co. will have passed into other hands. Already the Oriental ships, including the Olympia, Tacoma and Victoria, operated by Dodwell & Co., under the name of the North American Mail Steamship Co., have been sold to a committee representing the Northern Pacific Rd. The committee has also purchased the str. City of Seattle, owned and operated by Dodwell & Co. between Seattle and Lynn Canal points. The Pacific Coast S.S. Co. is negotiating with the committee for the purchase of the str. City of Seattle, and it is extremely probable that this Alaskan liner will soon be owned and operated by the Pacific Coast S.S. Co., which is also negotiating for the purchase from Dodwell & Co. of the latter's fleet of Sound steamers, which includes the North Pacific, Utopia and Sehome. The deal is likely to be consummated in a short time. The outcome of the purchases already made and the pending negotiations will probably mean the retirement of Dodwell & Co. from the Alaska and Puget Sound steamship fields. It is understood that they will, for the present at least, continue to operate as agents for the N.P.R., the Oriental liners which they have sold to that Co.

The day when the C.P.R. Empress steamers will meet strong competition in the trans-Pacific trade seems to be near at hand. Not only is the Great Northern Ry. constructing immense ships for the business, but the Pacific Mail Steamship Co. is making preparations along most pretentious lines. The Co. is soon to add a new passenger steamer Korea to its fleet, the vessel having been launched at the Newport News shipbuilding yards in Mar. last. The steamship is

a new steamer for the gulf ferry service between Vancouver and Victoria. The vessel will be built of steel, the frames and plates will be prepared in the east and shipped to Vancouver where they will be put together. The new boat will have a length of 280 ft., with a breadth of about 29 ft. over the paddle guards, will have three decks, and will be built for speed as well as for comfort. The engines will also be built in the east and shipped to Vancouver for erection on board. Figures have been asked for from eastern builders, but the contract has not yet been placed. It is, however, expected that it will go to the Polson Iron Works, Toronto.



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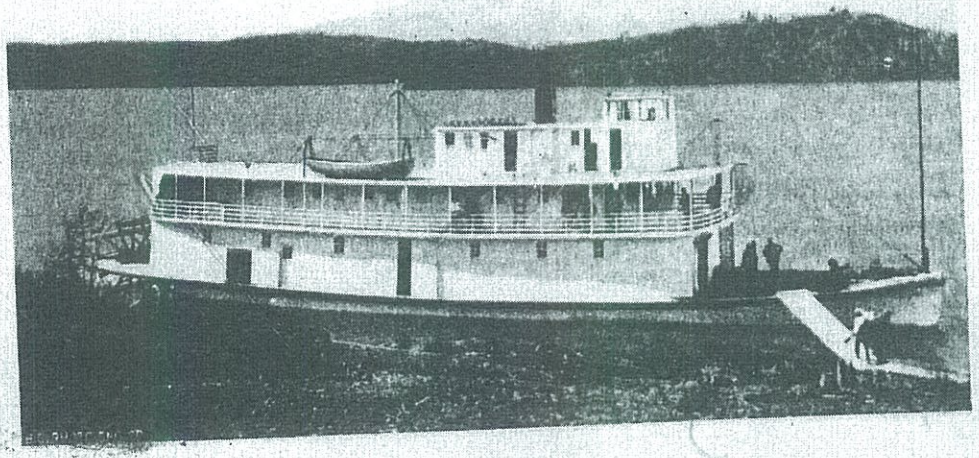

THE STEAMER GLEANER FOR ATLIN, ON TAKU ARM, B.C.

1900

between the mainland & Vancouver Island. When in B.C., recently, Vice-President Shaughnessy stated that although the C.P.R. had nothing to do with the building of the line between Midway & Penticton it would probably be operated by that Co. (May, pg. 70. June, pg. 100. July, pg. 122.)

A Vancouver dispatch of Aug. 10 says: "All work has been ordered stopped on the survey for the V.V. & E.R., which has been in progress for some weeks under the direction of A. Hill, C.E. He completed the survey from Abbotsford to a height of land on the route towards the coast, & had made good progress towards Chilliwack, when orders came to discontinue the work, but for what reason is not yet made known."

The Rossland, B.C., Miner says Hugh Sutherland, of Winnipeg, who it speaks of as "a partner of Mackenzie & Mann," the owners of the V., V. & E. charter, is reported as saying that the construction of the Penticton-Boundary Creek branch will not be commenced until next year, & that it has good reason to believe Mr. Sutherland has spoken with definite knowledge. The B. C. Legislature voted a cash bonus of $4,000 a mile for this line, & construction was to have been commenced by Aug. 8, but it is said the time has been extended, as the projectors want to obtain a Dominion subsidy in addition.

White Pass & Yukon Railway.

As previously described by us, this line is being built from Skaguay, Alaska, via the White Pass & Lake Bennet, the objective point being Fort Selkirk, Yukon. The line on the U.S. side of the line, or rather within the disputed territory, as it may turn out to be British, is owned by a U.S. Co., the Pacific & Arctic Railway & Navigation Co. The line within the limits of British Columbia is owned by the B.C. Yukon Ry. Co. & the line in Canadian territory, outside of B.C., is owned by the British Yukon Co. These three different lines will be operated by a company called the White Pass & Yukon Ry. Co., of London. Eng. Close Bros. & Co., of London, Eng., & Chicago, are the financial agents of the Co., & S. H. Graves, of that firm, is the representative on this side of the Atlantic. The Chief Engineer is E. C. Hawkins.

The distance from Skaguay to the Summit is about 20 miles, & from the Summit to Lake Bennett about 25 miles. The Pacific & Arctic Co. has about 1,500 men employed on construction, & would be glad to have double the number, & expects to get them as soon as the pressure of harvest work is over. Trains are now running to about half-way to the summit of the White Pass, & it is expected to reach the summit early in September & the & trains are running through it. The heavy rock cut at the summit of the Pass is also about completed & ready for track, & much of the heavy work on the line at intermediate points is in such a forward condition that track-laying will from now on be much more rapid than it has been. It is practically all heavy rock work to the summit of the Pass from Skaguay. There are 2 or 3 long, heavy rock cuts & 2 short tunnels. The maximum grade is 3.9 ft. per hundred. The maximum curvature is a 16 degree curve, of which there is only one. There are several bridges, but none of them involving any difficult or unusual construction. The larger bridges will be of iron & the smaller ones trestle. The only other structures in connection with the first section of the line are the large wharf & customs warehouses, etc., which are being erected at the port of Skaguay, & alongside of which there will be 30 ft. of water at low tide. The gauge of the line is 3 ft., & it is being laid with 56-lb. steel rails.

The rolling stock is the best modern equipment for that class of work, & the line is specially constructed for winter operation, so as to avoid snow blockades, etc. Early in August the Chief Engineer wired the Manager in Chicago: "More business is in sight than we can handle. Urgent need more equipment quick." In reply he was wired to procure immediately all the extra equipment needed.

The steamers plying on the Upper Yakon have proved so successful this season as to completely demonstrate its advantages over the Lower Yukon for safe & regular steamboat navigation. Several syndicates have already been organized for the purpose of running freight & stage lines during the coming winter between the end of the constructed railway & the interior. (Official.)

The Manager writes us from Chicago: "As regards continuing the line from Lake Bennett to Ft. Selkirk, the intention is to push on as fast as possible. It will not be possible to work during the winter on account of the shortness of the days & the severity of the weather in that northern latitude, but it is intended to commence work as soon as possible in the spring & to push it with the utmost possible speed. I hope that by having everything ready before-hand it may be possible to reach Ft. Selkirk before the end of next year; but this is a matter which, of course, one cannot speak with any certainty about; much will depend upon the nature of the line. We have survey parties running lines between the lakes & Ft. Selkirk, & the actual location of the road between those points will be decided after the survey parties come in this fall. You understand, of course, that running a railway survey in that country is an extremely different thing to running one down here. You will be better able to judge of this when I tell you that it took us 4 days to move our survey camp 4 miles, & that I have just received a letter from our Chief Engineer, who had returned from a 'flying' trip over one of the lines, in which he says that it took him over 2 hours to go half-a mile, unimpeded by instruments or baggage of any sort." (June, pg. 98. July, pg. 123.)

Canadian Government Railway System.

The new I.C.R. station at Moncton, built by Rhodes, Curry & Co., of Amherst, N.S., was opened Aug. 1. The ground floor is used for purely station work. On the 1st floor are the despatchers' & the Western Union Telegraph offices.

Rhodes, Curry & Co., of Amherst, N.S., have been awarded the contract for building the Intercolonial pier & sheds in Halifax. The contract calls for a pier 600 ft. long & 120 ft. wide, with a shed 80 ft. wide on it, having tracks through the centre. The contractors have started work. Tenders have also been asked for erecting a grain elevator, towards which the city of Halifax contributes $50,000.

Mr. Fielding, acting Minister of Railways, has been in St. John, N.B., with General Manager Pottinger & Chief Engineer McKenzie about the proposed I.C.R. terminal facilities. He said the engineers were preparing the plans as rapidly as possible, & the work, when commenced, will be pushed to completion. He could not say whether the elevator would be built on the Long wharf or on the Harris property. Nor was he certain that the improvements could be completed in time for this winter's trade. Mr. McKenzie said the intention was to build berths, one at either side of the Long wharf. There would be some difficulties in connection with dredging, because of rock, &, possibly, it might be necessary to acquire more property. That in the neighborhood is all held at a very high figure, & just what course will be pursued has not been determined on. It is thought that not a great deal will be done until the Minister, Mr. Blair, arrives. He will leave England Aug. 25.

J. M. LYON, General Passenger & Ticket Agent, Intercolonial Ry., Moncton, N.B., writes: "In enclosing my subscription I wish to say that THE RAILWAY & SHIPPING WORLD is worth looking forward for. I think the busy ones among its readers, which I trust are many, will find the time given to its perusal well invested."

9-1900

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course will include the [illegible]

(Unofficial.)

White Pass & Yukon.—Work is said to be progressing very favorably on this line, some 1,000 men being employed. It is intended to have the 1st 20 miles of the road, which will take it from Skaguay to the summit, completed by September. The statement referred to in our June issue, pg. 98, that the charter of the British Yukon Ry. Co. had been secured by the Pacific & Arctic Ry. & Navigation Co., of West Virginia, is incorrect. The latter Co. was merely formed for the construction of the portion of the line which is in territory now in the possession of the U. S. It is merely an auxiliary company formed for the purpose of assisting in the construction of the railway. The construction of the portion of the line to be built in Canada will be undertaken by a company formed in England, & the whole line will be built by British capital. Close Bros. & Co., of London, Eng., & Chicago, are the financial agents of the Co., & S. H. Graves, of that firm, is the principal representative of the Co. on this side of the Atlantic. The engineer in charge is Mr. Hawkins. (Official.)

Winnipeg & Southeastern.—It was intended to build 80 miles southeasterly from [illegible] this season.

9-1900

obtain a Dominion subsidy in addition.

White Pass & Yukon Railway.

As previously described by us, this line is being built from Skaguay, Alaska, via the White Pass & Lake Bennet, the objective point being Fort Selkirk, Yukon. The line on the U.S. side of the line, or rather within the disputed territory, as it may turn out to be British, is owned by a U.S. Co., the Pacific & Arctic Railway & Navigation Co. The line within the limits of British Columbia is owned by the B.C. Yukon Ry. Co. & the line in Canadian territory, outside of B.C., is owned by the British Yukon Co. These three different lines will be operated by a company called the White Pass & Yukon Ry. Co., of London Eng. Close Bros. & Co., of London, Eng., & Chicago, are the financial agents of the Co., & S. H. Graves, of that firm, is the representative on this side of the Atlantic. The Chief Engineer is E. C. Hawkins.

The distance from Skaguay to the Summit is about 20 miles, & from the Summit to Lake Bennett about 25 miles. The Pacific & Arctic Co. has about 1,500 men employed on construction, & would be glad to have double the number, & expects to get them as soon as the pressure of harvest work is over. Trains are now running to about half-way to the summit of the White Pass, & it is expected to reach the summit early in September & the Lakes about a month later. A heavy rock cut on Porcupine Hill, which has been such an obstacle to rapid progress, is finished,

9-1900

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The Atlin & Yukon Routes.

The following figures, compiled by the Vancouver Board of Trade, will be found useful for reference :—

WHITE PASS & YUKON RAILWAY (SKAGWAY PASS).

Vancouver to Skagway....		891	Miles.
Skagway to Summit	17		
Summit to Lake Bennett ..	20		
	—	37	"
Lake Bennett to Dawson..		552	"
		1,480	"

DYEA PASS (CHILKOOT PASS).

Vancouver to Dyea		895	Miles.
Dyea to Sheep Camp.....	13		
Sheep Camp to Summit...	3		
Summit to Lake Lindemann	8		
		24	"
Lake Lindemann to Dawson		558	"
		1,477	"

VANCOUVER TO DAWSON CITY, VIA ST. MICHAEL AND THE YUKON RIVER.

Ocean Steamer to St. Michael..	2,660	Miles.
St. Michael to Mouth of Yukon..	80	"
Yukon Mouth to Dawson City..	1,610	"
	4,359	"

The Behring Sea does not open for navigation till June, & the earliest date of arrival of a through steamer at Dawson is usually in July.

STIKINE-TESLIN ROUTE.

Vancouver to Wrangle.		700	Miles.
Wrangle to Stikine Island	8		
Stikine Island to Glenora	130		
Glenora to Telegraph Creek	12		
	—	150	"
Telegraph Creek to Teslin Lake		140	"
Lake Teslin to Hootalinqua River.....	70		
Hootalinqua River to Lewis River.....	130		
	—	200	
Lewis River to Fort Selkirk	277		
Fort Selkirk to Dawson City	173		
	—	650	"
		1,640	"

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ATLIN ROUTE.

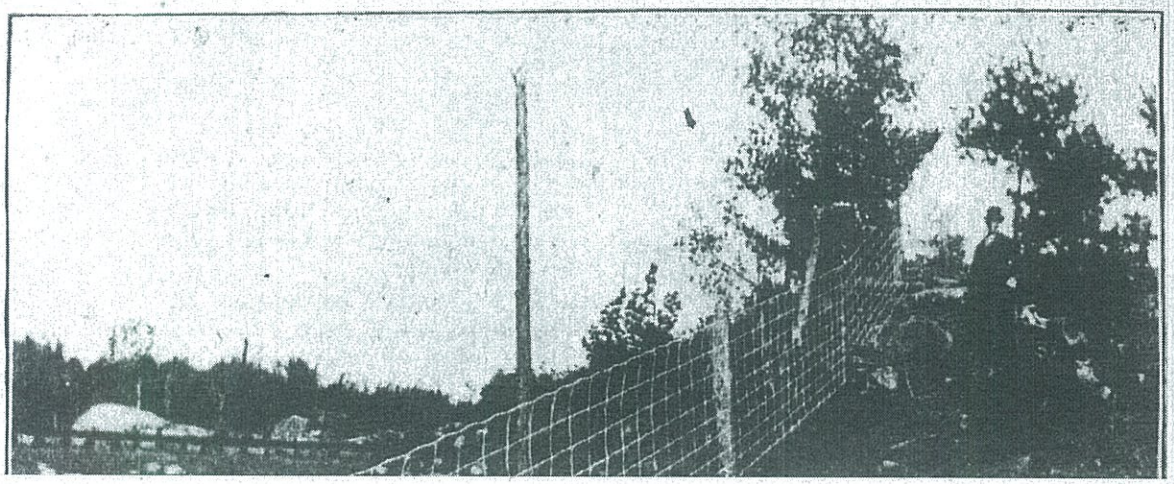
Vancouver to Skagway	891	Miles.

DISTANCES FROM SKAGWAY, VIA WHITE PASS & YUKON RY.—ATLIN ROUTE, VIA BENNETT LAKE (SUMMER).

Skagway to Bennett	36¾	Miles.
" Taku City	133¾	"
" Atlin	140¼	"

ATLIN ROUTE, VIA TOO-CHI LAKE (WINTER).

Skagway to Too-Chi Lake	38¾	"
" " " foot	60¾	"
" Taku Arm	64¾	"
" Golden Gate	94¾	"
" Taku City	109¾	"
" Atlin City	116½	"



9-1899

commenced this season. Engineers have been employed for a considerable period surveying the line & estimating the cost of the additional track, & are still working at the surveys & estimates.

It is said a branch will be built from Port Huron, Mich., south to the Jenks Ship Building Co.'s yards if sufficient business is guaranteed.

Surveys are said to be in progress for a new line from the west into Battle Creek, Mich., to avoid a steep grade.

Place Viger Station, Montreal.

The subject of the enlargement of the old Quebec Gate Barracks station yard, & the building of a combined station & hotel, was first taken up by the City Council of Montreal & the C.P.R. Co. in 1893. Several sites were proposed, & finally it was arranged that the City should expropriate the block bounded by Craig, Berri, Notre Dame & Lacroix sts., should sell the buildings thereon, & hand over to the Co. the vacant ground, comprising a total area of 208,450 ft., inclusive of parts of streets in the block.

The City also agreed to erect a bridge to carry Notre Dame st. & a part of Lacroix st. over the new yard, & to subscribe $150,000 towards the cost of a building not less than 4 stories high to be used as a station & hotel, on condition that the Co. should spend not less than $350,000 on the building & its appurtenances, & should cede to the City several valuable properties comprising an area of 184,856 ft. By Nov., 1895, the City had acquired the entire block & had removed all the buildings therefrom, except a fire station at the corner of Notre Dame & Lacroix sts. In Jan., 1896, the Notre Dame st. bridge was completed. In May, 1896, the deed was passed conveying the new block to the Co., & the properties above mentioned to the City.

The surface of the new block was very irregular, being at an elevation above city datum of about 64 ft. next Notre Dame st., & 20 ft. adjoining Craig st.

As the level of the new yard is about 34 ft., the excavation amounted to about 75,000 yards, exclusive of the excavation required for the erection of the bridge under Notre Dame st. & part of Lacroix st. In July, 1896, the Co. began the erection of the new freight shed in the old Quebec Gate Barracks yard, now called the Barracks yard, & work was commenced on the station building in Aug., 1896, & was carried on continuously until Aug. 15, 1898, when the station was opened for traffic. The hotel was opened a few days later.

The new yards being at right angles to the tracks which led to the old station, it was necessary to lay out the new tracks oblique to the new station in order to provide a sufficient length of straight track next the station. These tracks are shown on the plan on pg. 107. At present track no. 1 leads past the stores building & the end is used for repairs. Tracks nos. 2 & 3 are for baggage & express cars, which are, in the future, to be loaded opposite the baggage & express platforms, & pulled out & coupled to front of outgoing trains a few minutes before train time. At present, however, the baggage is taken on trucks up to baggage cars at their place in front of trains. Tracks nos. 4 & 5 are for passenger car storage. Nos. 6, 7 & 8 are outward passenger tracks, & nos. 9, 10 & 11 are inward passenger tracks. Tracks nos. 12 to 17, both inclusive, are for delivery of freight direct from cars to trucks. These are all the tracks in the new Place Viger yard.

There are at present no passenger tracks in the old yard, now called the Barracks yard. Tracks nos. 1 & 2 of this yard are for freight delivery from cars into the lower storey of the old station building, which is to be used for freight storage, while the space below Notre Dame st. bridge, next the old station, is being closed in & connected with the old building by four 8-ft. doors, & will be used for delivery of freight to trucks. The top storey of the old station, at the level of Notre Dame st., is fitted up as offices for the Division Engineer & his staff, the Superintendent of Terminals, the Roadmaster, & the Stationery Department & stores. It is proposed to put in an intermediate floor between the two storeys above mentioned for freight storage. Tracks nos. 3 & 4 are for unloading freight direct from cars into trucks, nos. 5 & 6 are for storing cars of freight for delivery to city, & no. 7 is for freight delivery direct from cars to trucks. Tracks nos. 8 to 16, both inclusive, are for delivery from cars into freight sheds. No. 17 is for car storage, no. 18 is for freight delivery direct from cars to trucks, & nos. 19 & 20 are grain elevator tracks.

There is a complete system of water, steam & air pipes laid across the entire head of the Place Viger yard, the pipes also extending from the head of the yard for about 210 ft. between tracks 5 & 6, for about 350 ft. between tracks 7 & 8, & for about 670 ft. between tracks 9 & 10, & between tracks 11 & 12. These pipes are laid from 5 to 6 ft. below base of rail, & are enclosed in a wooden box of 2-inch plank. At the head of the yard, between each pair of tracks, and also at intervals of about 100 ft. along the lines of pipes between the tracks above described, there are vertical shafts, 2½ x 2½ ft. clear inside, rising to the level of the top of the rail, made of 3-in. plank. Stand pipes for water, steam & air, with the usual rubber pipe connections, are set in these shafts. The boxes in which the pipes are laid have a grade of 2½ ins. per 100 ft. towards the head of the yard, so that any water collecting in them may drain off into a 10-in. pipe running under the station building opposite the end of track [illegible]

The platforms between the tracks have an umbrella-roof covering the [illegible] of the platforms, supported on a single row of [illegible] posts along the centre line of the platforms. This arrangement of the posts is much more convenient than the double row adopted by some railways, as it does not interfere with passengers getting on or off trains, & [illegible] separates the passengers coming from or going to trains on either side of the platform. These covered platforms are lighted by an incandescent lamp between each pair of posts.

The station & hotel building is the early 16th century style of French Renaissance. The exterior face of the walls, up to the sill of the first floor windows, is of pick-faced, grey Montreal limestone, plainly treated. The remainder of the exterior face is of Glenboig firebrick of buff color with dark mottling, the quoins, heads, string courses, etc., etc., being of Montreal grey limestone. There is a covered portico, 16 ft. wide, on the Craig st. face, extending along the entire length of the main building, having a stone colonnade in front, & being approached by five stone steps running the whole length of the portico. The roof of this portico is used as a promenade during the summer. The roof of the entire building is of slate with copper flashing.

The whole of the work was carried out under the supervision of the Co.'s Chief Engineer, P. A. Peterson, J. P. O'Leary being inspector of works. We are indebted to Mr. Peterson for the foregoing description, which was written by H. Irwin. A plan of the yards & a view of the station & hotel building appear on pages 107 & 109.

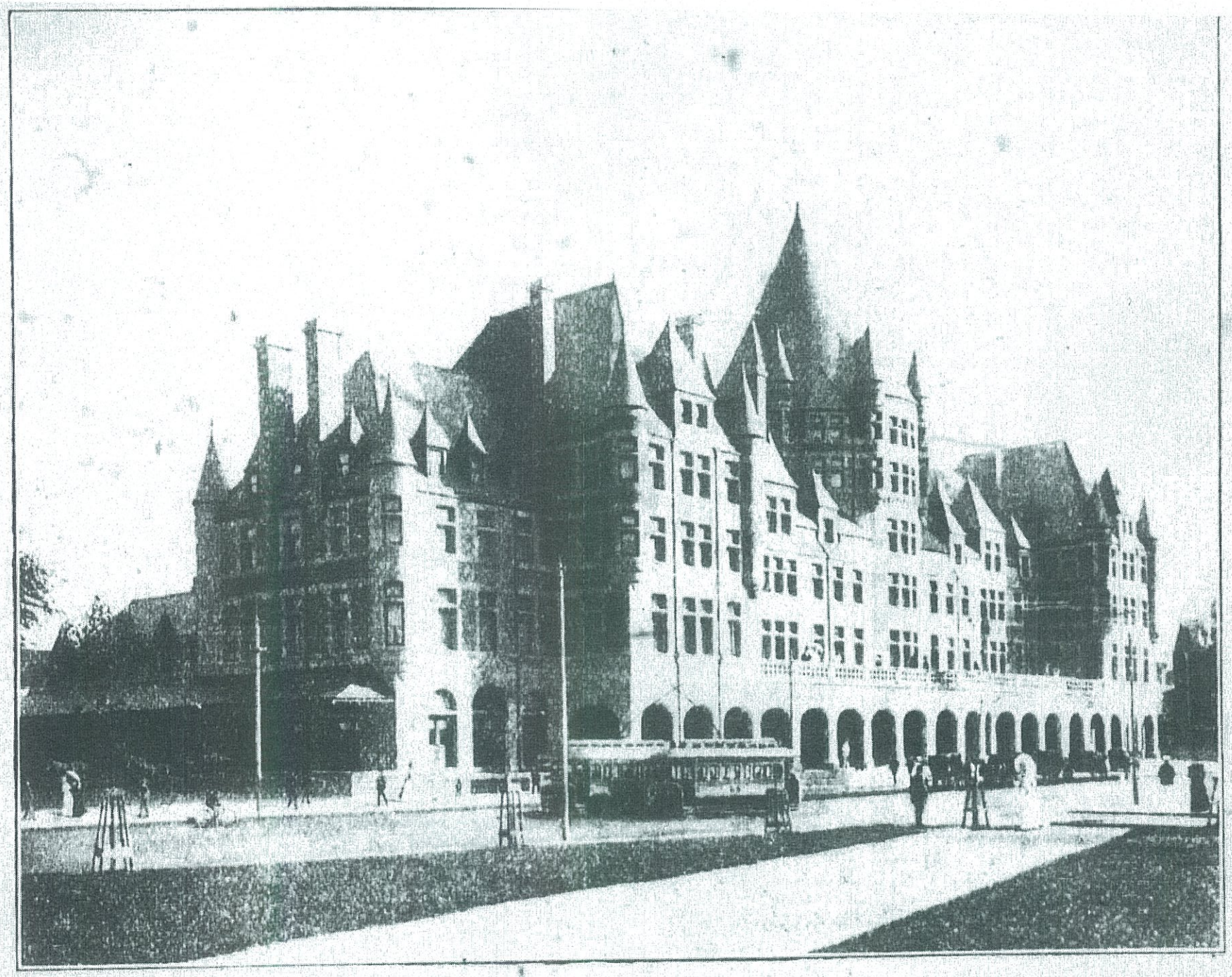
The Crow's Nest Pass Railway.

Some interesting particulars about this line are given in a report made by the Government Superintending Engineer, G. R. L. Fellows, under date of Dec. 1 last, as follows:

The railway was given under contract to the C.P.R. Co. to be constructed & equipped for a subsidy of $11,000 a mile, from the bridge to Nelson, the total amount of subsidy not exceeding $3,630,000. The line was to be opened for traffic on or before Dec. 31, 1898, as far as the south end of Kootenay Lake, there providing train transfer facilities without transhipment, not later than that date, from that point to Nelson, B.C., the service to be kept up until the balance of the road to Nelson was completed & put in operation for public traffic, the contract allowing the Co. until Dec. 31, 1900, to complete it.

The section of road to Kootenay Lake to be in safe condition to be opened for traffic before the close of the present month; & equipped with rolling stock sufficient for the requirements of the traffic. Car loads of freight have already been carried from the south end of Kootenay Lake to Nelson, B.C., by water in transfer barges & steamers, thus giving the public a traffic service before the expiration of the time limit named in the contract.

4-1899



C. P. R. STATION AND HOTEL, PLACE VIGER, MONTREAL.

are, for the most part, the same, & it is likely the present owners will bid in the property.

White Pass & Yukon.—The directors of the British Columbia Development Association have declared an interim dividend of 20%, being 15% on the preference shares, & £10 a share on the founders' shares. Accompanying the dividend notice is a circular stating that under an agreement dated July 29, 1898, Close Bros. had an option to pay this Co. £26,500 in redemption of £53,000 shares in the White Pass & Yukon Ry., held by the directors as security for this amount. Owing to litigation concerning the ownership of a large amount of shares, of which these £53,000 formed part (in which litigation, however, the Co.'s interests are in no way jeopardised, as both parties admit the right of this Co.), the directors have been able to make a new & satisfactory arrangement. Close Bros. have agreed as follows:—To redeem £10,000 of shares by a payment of £5,000 in cash; to purchase at par £5,000 of the £10,000 White Pass & Yukon debenture stock held by this Co.; to transfer absolutely to this Co. £5,000 White Pass Railway shares as a bonus; Close Bros. & Co. to have the option to redeem the remaining £38,000 shares on or before Dec. 31 next, on payment of the balance of £21,500. The £10,000 has been paid by Close Bros., the loan from the bankers (£3,700,) has been paid off, & about £2,500 remains in hand after payment of the dividend.

Notice is given that the following documents have been deposited at the Land Registry Office at Victoria, B.C.:—An Indenture of Mortgage made Oct. 7, 1898, between the B. C. Yukon Ry. Co., the Pacific Contract Co., F. Pavy & C. C. Macrae, & a notarial copy thereof & 1st mortgage bond, dated Oct. 7, from the B. C. Yukon Ry. Co. to F. Pavy & C. C. Macrae, for the principal sum of such an amount as shall be equal at the rate of £6,000 a mile, to the line of railway of the B. C. Yukon Ry. Co., & a notarial copy of the said bond, such bond being secured by the said mortgage.

It is stated that the tramways around White Horse Rapids, both controlled by the Macauley Co., have been sold to the White Pass & Yukon Ry. Co., the price paid being $185,000. From this it is inferred that the Co. proposes extending its line down the river.

Grand Trunk Earnings, Expenses, &c.

months ago but for the accident in Aug. last when one of the piers collapsed, resulting in the death of several workmen & seriously impeding the progress of the work. Operations had to be entirely gone over & to do the work thoroughly a great deal of time & expense has been necessitated. The bridge over the north channel is completed & work is being proceeded with day & night on the remaining portion, the men working in 3 gangs, 8 hours each. It is expected that the through service will be established in Oct. or Nov. (July, pg. 210.

St. John Valley Railway.—J. H. Miller, of New York City, states that construction will begin this fall & that it is expected to have the road finished by July 1900. The route will be from Fredericton to Lower Woodstock, thence to Houlton, Me., to connect with the Bangor & Aroostook R.R. The line will be operated as a local institution. (May, pg. 137.)

White Pass & Yukon.—We are officially informed that a large force is still at work on the line between Skagway & Lake Bennett, 42 miles, ballasting & perfecting the grade & alignment. Work has not been commenced upon construction beyond Bennett towards Fort Selkirk, but the management anticipates that a force will be located on that line before winter opens. A large amount of freight is going in over the line & there is considerable tourist travel in addition to that of miners & prospectors. The line has been built by the Pacific Construction Co., & is expected to be turned over to the railway company about Aug. 20. The 42 miles between Skagway & Lake Bennett are said to have cost about $2,000,000 exclusive of equipment. (July, pg. 210.)

The management has no information respecting the proposed line to be built by Capt. W. Langley from Taku City to Atlin. (June, pg. 176.)

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the new railway is to run to Prince Albert thence to Edmonton. Passing through Alberta in a north-westerly direction, the railway will strike the Yellow Head Pass in the Rockies & then will come the most novel & difficult part of the undertaking—the construction of the line through British Columbia to Fort Simpson, some 500 miles north of the western terminus of the C.P.R. To realize what an extension of our railway system this will be consider that a straight line drawn from Vancouver to Fort Simpson is as long as one drawn from Toronto to James Bay.

What will be the result of opening up the northern part of British Columbia, now inaccessible except to hardy explorers, is largely a matter of speculation. But when all this work is finished the possibilities of railway development in this country will be by no means at an end. A railway 150 miles long from Prince Albert to Edmonton would give communication into the great territory of Athabasca. The projectors of the new line seem to have their eye on Hudson's Bay, the western shore of which is less than 400 miles from the eastern limit. It would not be surprising if "the study of small maps," that fascinating but sometimes misleading occupation, should have suggested the dream of a transcontinental railway of an entirely new kind, connecting the Pacific Ocean and Hudson's Bay. It looks like a dream now; but perhaps not more of a dream than the C.P.R. seemed to be 50 years ago.—Globe.

8-1899

The Chilkoot Pass Tramway, which has been sold to the White Pass & Yukon Ry., is said to have been closed down for a time at least.

The Great Eastern Ry., which runs from the C.P.R. at St. Michel de Yamaska to St. Gregoire on the G.T.R. in Nicolet county, Que., & is 23 miles in length, is to be sold by the sheriff at Sorel Aug. 29, at the instance of Mayor Prefontaine, of Montreal, in his suit against the Co. & C. N. Armstrong. This line is included in the Atlantic & Lake Superior system, having been purchased in 1894 for $115,000 cash, $150,000 1st mortgage bonds & $420,000 in paid up capital stock.

Westinghouse air brakes, & Westinghouse friction draw gear.

The White Pass & Yukon is rapidly adding to its motive power & other rolling stock. Seven locomotives will be shipped north to Skagway by the middle of July, 120 cars are being built there & additional passenger coaches will be sent from the south. Three of the locomotives are simple consolidation for freight traffic, cylinders 16" x 20"; eight drivers 38" diam., 36" gauge; driving wheel base, 12' 9", total wheel base of engine 19' 9"; weight on drivers about 75,000 lbs., weight on truck wheels about 10,000 lbs., total about 85,000 lbs; straight boilers to work under steam pressure of 180 lbs.

At the recent annual meeting of the stockholders of the Richmond Locomotive Works the retiring directors & officers were re-

April 1900

no definite information is obtainable. (Mar., pg. 74.)

Toronto, Lindsay & Pembroke.—The Ontario Legislature has granted a subsidy to this Co. of $3,000 a mile for 36 miles from 15 miles east of Bancroft to or near Golden Lake.

White Pass & Yukon.—The following official information has been furnished us under date of April 12: "The line between Caribou Crossing & the new town of White Horse, formerly called Closeleigh, is practically graded. Track-laying began April 10 & will be pushed immediately to the 2 long trestle bridges on the 15th mile, across the canyon at the outlet of Lewis Lake. This canyon was caused by an attempt to lower the water-level in this lake. The water cut back on the river channel through the alluvial deposit of sand & gravel & drained about 80 ft. of water out of the lake. This made a great flood down the Watson river & washed out a number of the camps, causing considerable damage, but no loss of life. One locomotive, 9 flat cars & 25 miles of rails are at Caribou ready for the work. The balance of the rails will be shipped immediately upon the opening of navigation on Lake Bennett. This lake opens about 10 days sooner than Lake Marsh, giving us time to finish the track-laying to White Horse by the opening of navigation on the main river. This will admit of our immediately engaging & handling freight around White Horse Rapids. The work around Lake Bennett has been opened up for 7 miles & several new camps will be established this week down as far as the 13th mile. This is about the end of the heavy rock work. From the 14th mile on to the 27th, at Caribou Crossing, the work will be left until the snow is off the ground, then a large force of teams & men will be put on with the expectation of finishing the work by the latter part of July or beginning of Aug., giving us a through railway service from Skagway to White Horse, a distance of 112 miles. In the meantime the transfer of goods & passengers will be made on Lake Bennett by means of steamers. It was at one time thought advisable to put on large ferry barges & transfer the cars without unloading, but as this section is to be so soon completed this idea was abandoned. Plans for the drawbridge at Caribou Crossing have been approved by the Department in Ottawa & some of the material has already gone forward. This

bridge will be put in in June & July. Another quite extensive improvement is under way across the big ravine at the switchback. A steel arched cantilever form of bridge will cross the deeper portion of the canyon. The approaches, which are on 16° curves, will be of trestles. The steel span is 400 ft. in length. The outlook for mining in Atlin, White Horse & down the Yukon is very favorable for the future. We have made an extremely low rate on copper & other ores from White Horse to the smelters on Puget Sound. Upon the completion of the road to White Horse we will take the ore for $15 a ton from White Horse to the smelters on the Sound, a distance of over 1,100 miles." (Feb., pg. 43.)

A large coal bunker is to be built at Skagway.

Winnipeg, Selkirk, & Lake Winnipeg Ry.—R. R. Sutherland, solicitor, Winnipeg, gives notice of application to the Manitoba Legislature to incorporate a company under this name, to construct & operate a railway from Winnipeg via West Selkirk, to a point on the Red River at or near Selkirk, or on the western shore of Lake Winnipeg, & with other powers.

RAILWAY APPOINTMENTS, Etc.

Canadian Pacific.—D. McNicoll, heretofore Assistant General Manager, has been appointed Second Vice-President & General Manager, under the provisions of a by-law approved at the recent annual meeting, which authorizes the Board to appoint 2 or more additional vice-presidents, to be called second vice-president, third vice-president, & so on, no one of whom need necessarily be a director. The position of Vice-President has not been filled.

L. A. Hamilton has intimated to the President his desire to resign the position of Land Commissioner, owing to the serious illness of his only daughter, whose removal to another climate is considered necessary to restore her health. No action has been taken in the matter, & it is understood that the Executive is very unwilling to accept Mr. Hamilton's resignation. Should it be accepted it is expected he will be succeeded by F. T. Griffin, who has occupied the position of Assistant Land Commissioner for a number of years. At present Mr. Hamilton is in Cuba in connection with Sir Wm. Van Horne's interests there.

R. Atkinson, heretofore Mechanical Super-

principal source of trouble, the services of this machine have been indispensable to train operation. Except during times of temporary blockade two passenger trains have been run each way, daily, all winter, besides freight trains, the necessity for keeping the traffic moving being more urgent than otherwise for the reason that construction work on the extension of the road beyond Lake Bennett has been carried on all winter with a force of about 500 men. The greatest difficulties were encountered during a few days ending with Mar. 10, when, in a determined effort to raise the blockade, the rotary was kept continuously at work for 105 hours. The experience with the rotary plow under the conditions which have prevailed on this road, has shown some of the weak points in rotary plows as ordinarily constructed for narrow gauge lines, the result of which is that specifications have been drawn, & work is now proceeding on the construction of a new plow along improved lines, for service next winter.—Railway & Engineering Review.

Nova Scotia Legislation.

Paul, $294,000, & the Louisville & Nashville, $289,000. Perhaps the most remarkable gain has been that of the 13 roads, classified as the Northwestern & North Pacific group. Their gross earnings for Mar. were nearly $13,500,000. Six years ago the earnings of these same roads for that month were $7,500,000. The Southern group of 11 roads gains from $6,500,000 in 1895 to nearly $10,000,000 in Mar., 1900. The roads in the coal & manufacturing districts are being most favored by the existing trade prosperity. The Hocking Valley, for example, whose traffic consists largely of bituminous coal, though a small road, reports an increase of $131,000. The increased cotton movement has had its effect upon the Southern roads. The receipts at the southern outports for Mar. were 450,000 bales, against 377,000 last year. At the same time the receipts of cotton at Galveston fell off 6,000 bales. There has also been an increase in the shipments of wheat, which has affected the Western roads. The receipts in the primary markets in the West for the 5 weeks ended Mar. 31, 1900, were 19,500,000 bush., against only 16,750,000 bush. the corresponding weeks of last year. Yet at Chicago, Kansas City & several other points, the wheat receipts this year were smaller than a year ago. During the same weeks also the receipts of corn have made a gain over the receipts of the preceding year of some 8,000,000 bush.; oats, 2,000,000; & barley, 2,500,000 bush.—Railroad Gazette.

RAILWAY TO THE YUKON.

Under provisions made by Parliament in the sessions of 1898 & 1899, surveys have been conducted with a view to ascertaining the feasibility & approximate cost of a line of railway to be constructed entirely on Canadian territory, in order to give communication with the Yukon district from a point on an existing Canadian railway, & also from a Canadian port on the Pacific coast. Three surveying parties have been engaged in the work, under the charge respectively, of V. H. Dupont, C. F. K. Dibole & J. S. O'Dwyer. The results of their work are summarized by the Chief Engineer as follows:

The most northerly point on an existing railway system is Edmonton, the present terminus of the Calgary & Edmonton Ry. (leased to the C.P.R. Co.), 192 miles north of Calgary on the C.P.R. main line. This place was accordingly adopted as the objective point from which the projected line should start, & here two of the expeditions were organized. The point of commencement of actual survey, however, must be regarded as in the neighborhood of the eastern boundary of British Columbia, about 500 miles from Edmonton by the existing trail via the Lesser Slave Lake, to the Peace River & thence following the course of that river. The intervening country is known, & is understood to present no serious obstacles to railway construction.

Starting from a point about 9 miles east of the B.C. boundary, a possible location has been found, which practically runs westerly along the southerly side of the Peace River for about 199 miles to the junction of the rivers Parsnip on the south & Finlay on the north, this junction of waters forming the Peace River. In this distance there occurs a stretch of about 10 miles, where the waters of the Peace lie in a canyon the walls of which are about 400 ft. high, pierced by numerous gullies or creeks which would require to be bridged. At the junction, it is necessary either to cross the Parsnip, which would be effected by a bridge at a point about 2 miles above the junction, the length of which would be 950 ft., with a height of about 32 ft. above low water (a work for which the bed of the river, composed of very compact gravel, would offer good foundation) or by a bridge, below the junction, at Finlay Rapids, where the bed of the Peace River is rock. This crossing would, however, necessitate the bridging, also, of the Finlay, which is about the same width as the Parsnip. The work to be executed comprises 135 miles of light, 46 of medium, & 20 of heavy construction. The estimated cost of this 201 miles, up to & including the crossing of the Parsnip, is at the average rate of $19,721.47 a mile, or $3,964,016.88, including 16 bridges, varying in length from 25 to 950 ft. This estimate is based on prices for similar work in Eastern Canada, to which must be added the cost of transport of laborers, plant & material, & whatever difference there may be in rate of wages. Good sandstone for masonry work is abundant, but black & white spruce, which is plentiful, would be the only timber available.

From this junction of the rivers Parsnip & Finlay the line for some 25 miles crosses the wide valley lying between the Rocky Mountains & the Cariboo Range. It follows the west bank of the Finlay 16 miles to the mouth of the Omenica, thence along the south bank of the latter 9 miles to the west border of the above-mentioned valley. From this point it continues westward, following the Omenica to the mouth of the Osilinca, thence along this river to its headwaters, 90 miles from the Parsnip. These 90 miles are estimated to cost $15,600 a mile, including steel bridges, or $1,404,000.

From this 90th mile a line will need to be obtained via Sestoot Lake & River—(passing a few miles north of Ft. Connoly)—to the junction of the Sestoot with the main Skeena River. At this point the railway would probably turn to the north, following the valley of the Skeena, but the season was too far advanced to admit of full exploration; from information obtained, however, there does not appear to be any serious obstacle to construction. From a point about 28 miles lower down on the main River Skeena, an exploring party travelled about 53 miles northerly & up the valley of the Nass, to a point where the main waters of the Skeena were met. Here is a union of two parallel valleys formed by a high hilly range, running for a distance of about 45 miles, north-west, in both of which are the summit waters of the Skeena, flowing south, & of the Stikine, flowing north. Either would appear to offer a feasible route for a railway. By the westerly one the distance would be about 6 miles longer than by the other. The gradients also of the westerly are more severe, being 54 ft. to the mile against 22 ft. At this northerly end these two valleys join, & the waters which have traversed them become the main river Stikine. From this point of junction for a distance of about 130 miles down the Stikine, there appear to be no features of difficulty, considering the country traversed, but as the descent of the river continues, its

waters pass through so severe & extensive a canyon district—the Great Canyon of the Stikine—that it was considered advisable to ascertain whether a less difficult route could not be found.

From information gained from various competent & reliable sources, it appeared likely that by leaving the Stikine valley and following a north-westerly course to Dease Lake, not only would a better location be discovered, but that from Dease Lake a comparatively easy route could be followed to the head of Teslin Lake, along an existing trail between the two lakes, which would, approximately, be the route adopted, & which had been traversed by prospectors the previous winter in 7 days. From Teslin, the river navigation to Dawson is, of course, that at present followed. Exploration was accordingly carried on with the view to a railway location to Dease Lake in the auriferous Cassiar district, & the results show that a practical route can be obtained from a point (Beaver Creek) above the Great Canyon of the Stikine to that lake, about 59 miles, with but a limited amount of heavy work. An estimate of the cost of the last 111 miles, comprised in 52 miles down the Stikine Valley to Beaver Creek, & the 59 miles from that creek to Dease Lake has been furnished, based on prices in Eastern Canada (to which has, therefore, to be added the cost of labor, transport, supplies & whatever difference there may be in wages) as follows:—74 miles of light work at an average cost of $14,000 a mile; 32 at $23,000, and 5 at $35,000, which together with provision for bridges, $75,000, aggregates $2,022,000 as the estimated cost of this section.

Should the line indicated above be followed the approximate distance from the easterly boundary of B.C., to the southerly end of Dease Lake would be 646 miles, & a further distance of 136 miles would bring the railway to the head of Lake Teslin, making a total of 782 miles to the navigable waters of the Yukon district. From Edmonton to the boundary the approximate distance would be 500 miles, making the total approximate distance from an existing railway system to the head of Lake Teslin, 1,282 miles. Of this distance much remains necessarily undetermined; connecting links of surveys have to be made; alternate routes on certain portions have to be carefully considered; & possible improvements may be found by which the location, even where now regarded as clearly defined, may be modified to advantage. Still a good deal of valuable information has been obtained, & the feasibility of constructing the railway without inordinate cost has been demonstrated. It appears, however, highly probable that a very much shorter line of no difficult character can be obtained from the head waters of the Stikine to Dease Lake by following down the valley of the river Clappan (or third south fork of the Stikine) & crossing the main Stikine above the Grand Canyon.

Explorations with a view to location of a railway from a Canadian Pacific ocean port 130 miles to the point of junction of the waters of the Skeena & Sestoot, above mentioned as on the suggested line from Edmonton, from which point the railway might follow the route of that location to the northward as already described.

Port Simpson, the most northerly of the harbours of B.C., is about 50 miles north of Port Essington, & from it a survey was made in 1879, southerly to the river Skeena, about 40 miles; thence up the river on its north side, in a north-easterly direction; the first 60 miles was actually located, the work on the first 32 miles being classed as very heavy. Port Simpson, which, in common with other possible ports, received in 1879 careful examination, has been pronounced both by naval & engineering experts to be an exceptionally fine, deep harbour, well protected from winds; easy of access from the sea; free from frogs & ice; never freezing over even during the winter of 1878, which was an extremely severe one; while the average winter snowfall does not exceed 18 inches, & this does not remain more than a day or two. The officer of the Hudson's Bay Co. records the budding of trees & the blooming of garden flowers on Feb. 10, 1878. These climatic advantages are, of course, due to the Japan current.

Port Essington, about 450 miles from Victoria, is situated on the south side of the Skeena about 11 miles from its mouth. It is not a good harbour, the access from the sea being bad, while it is exposed to winds & the action of masses of ice from the Skeena, which drifting up and down with the tide render it practically ice-bound for the winter months. A good harbour, however, exists beyond the mouth of the river, to which the name of Port Fleming has been given.

A third port might possibly be found on Kitimat Inlet, up the Douglas Channel. At the head of this inlet is the mouth of the river Kitimat, the valley of which, though not fully explored, was to some extent examined by the survey parties of 1876, resulting in the opinion that an easy route could be found up to the river Skeena. It would possibly join that river at a point about half way between Port Essington & Hazelton, considerably reducing the distance for traffic coming up from Victoria and Vancouver & greatly decreasing the cost of railway construction as compared with a line from Port Simpson. In 1898 & 1899 powers were given by the Province of B.C. to a railway company to build a line from the Kitimat Inlet with an objective point, east of Lake Babine, on the river Omenica.

It might also be desirable that a route should be explored up the valley of the Nass, the mouth of which is on the south side of Portland Inlet, & which may be found to afford a practicable means of communication with Telegraph Creek on the Stikine, whence an easy location, with the exception of a small portion, can be found along the present trail to Dease Lake, distant about 72 miles.

RAILWAYS & CANALS.

was double track. The number of miles in operation was 17,250.

The paid-up capital amounted to $964,699,784, an increase of $23,442,747. The gross earnings amounted to $62,243,784, an increase of $2,528,679, & the working expenses aggregated $40,706,217, an increase of $431,328 compared with those of the previous year, leaving the net earnings $21,537,567, an increase of $960,011. The number of passengers carried was 19,133,365, an increase of 689,316, & the freight traffic amounted to 31,211,753 tons, an increase of 2,425,750 tons. The total number of miles run by trains was 52,215,207, an increase of 1,526,924. The accident returns show 20 passengers killed.

The Government expenditure on railways prior to & since Confederation (1867) amounts, on capital account, to $124,327,857.65 (including a payment of $25,000,000 to the C.P.R. Co.) & for railway subsidies charged against the Consolidated Fund the further sum of $20,633,842.16, making a total expenditure of $144,961,699.81. In addition, there has been an expenditure since Confederation, for working expenses of $76,726,244.05, covering the maintenance & operation of the Government roads, or a grand total of $221,687,943.86, all of which, with the exception of $13,881,460.65, has been expended on railways during the past 32 years. This total does not include an annual subsidy of $186,600 to the Atlantic & Northwest Ry. Co. for 20 years from July 1, 1889, nor interest at 5% on $2,394,000, payable to the Province of Quebec for the line from Quebec to Ottawa, which has been transferred to the Public Debt. The revenue derived from the Government roads during the same period amounts to $68,451,220.29.

Canadian Pacific Ry.—By the payment during the fiscal year of $233.67, the total amount, $579,255.20, awarded to this Co. in 1891 by the special arbitrators in respect of transferred works in B.C., & to be expended by the Co., under Government supervision, in certain specified directions, has been earned & paid.

The construction of the Crow's Nest Pass Ry., being considered a necessity for the successful development of the mining interests of B.C., Parliament granted a subsidy of $11,000 a mile in aid of it. Under the Act the C.P.R. Co. undertook the work of construction & entered into a contract, breaking ground July 15, 1897, since which the works of construction have been prosecuted continuously up to date, there remaining only work to the value of $60,000 to complete the section between Lethbridge & Kootenay Lake. The length of road under contract is: Lethbridge to Kuskanook Station (Kootenay Lake), 290 miles; Kuskanook Station to Nelson, 54 miles; total length, 344 miles. The maximum grade is 1%, or 52 $\frac{8}{10}$ ft. per mile, severest curves 10 & 12 degrees, except in one instance, where a 15 degree curve has been introduced. The work of construction has so far been confined to the section between Lethbridge & Kuskanook Station, 290 miles, which section of road is being successfully operated to the great benefit of the country. A train transfer landing has

sale, as provided by this section, whether concerning or incidental to the appointment of the sequestrator, the duties, rights, or powers of the sequestrator, the operation or sale of the railway, the distribution or application of the proceeds of such sale, or otherwise, shall be in accordance, as nearly as may be, with the procedure in similar matters in force in such province with respect to the sequestration or sale of railways within the legislative authority of the legislature of such province.

"3. This section shall have force & effect only with respect to such companies as are designated from time to time by proclamation of the Governor General; & it shall cease to have effect with respect to any such company on & after a day to be mentioned by proclamation of the Governor General."

In regard to the last amendment proposed by the bill, the Minister, in introducing it, said: "It appears that there are, or is, at all events, a railway company which has been in the receipt of aid from one of the provinces, which has operated a part of its line, but which does not choose to operate the remainder of its line, & the non-operation of which is a great detriment to that section of the community. The object is to enable some tribunal to deal with such a condition of things, & to insist, by the exercise of the pressure which an authority of this kind will confer on the tribunal, upon its being operated. It operates a part of its line profitably already."

Snow on the White Pass & Yukon.

The fall of snow in Alaska & Yukon during the past winter has been unusually deep & the operation of the White Pass & Yukon Ry. has been attended with greater difficulties than was the case during the winter previous. The exact snowfall during the entire winter we have not been able to ascertain, but during Dec., 1899, the snowfall at Glacier, on the line of the road, was 90½ ins.; the fall at the summit of White Pass was 55 ins.; & at Log Cabin, between the summit & Lake Bennett, it was 74½ ins. The snowfall during Jan. was heavy, although not quite as much as during Dec. During Feb. & up to Mar. 10 there were snow storms at occasional intervals, with more or less obstruction to the passage of trains. In anticipation of trouble from deep snow a narrow gauge snow-plow of the ordinary rotary type, specially constructed for the road, had been provided in season, & owing to the drifting of the snow, which has been the principal source of trouble, the services of this machine have been indispensable to train operation. Except during times of temporary blockade two passenger trains have been run each way, daily, all winter, besides freight trains, the necessity for keeping the traffic moving being more urgent than otherwise for the reason that construction work on the extension of the road beyond Lake Bennett has been carried on all winter with a force of about 500 men. The greatest difficulties were encountered during a few days ending with Mar. 10, when, in a determined effort to raise the blockade, the rotary was kept continuously at work for 105 hours. The experience with the rotary plow under the conditions which have prevailed on this road, has shown some of the weak points in rotary plows as ordinarily constructed for narrow gauge lines, the result of which is that specifications have been drawn, & work is now proceeding on the construction of a new plow along improved lines, for service next winter.—Railway & Engineering Review.

Nova Scotia Legislation.

Among the acts passed at the recent session of the N. S. Legislature were the following:—

To encourage manufacturing & ship building.

Relating to the Stewiacke Valley & Lansdowne Ry. Co.

Relating to the re-appraisement of lands in the Municipality of Barrington required for track & station purposes of the Halifax & Yarmouth Ry.

To amend the act to incorporate the Canso & Louisburg Ry. Co.

To confirm the contract between the Government & the Inverness & Richmond Ry. Co.

To amend the act to incorporate the Liverpool & Milton Tramway Co., hereafter to be called the Liverpool & Milton Ry. Co.

To incorporate the Nova Scotia Coal, Iron, Copper & Ry. Co.

To amend the act incorporating the Valley Telephone Co.

To amend the act incorporating the Barrington & Cape Island Steam Ferry Co.

To amend the act respecting the N. S. Southern Ry. Co

To incorporate the Cape Breton Electric Tramway Co.

Relating to the Inverness & Richmond Ry. Co., & to the act incorporating the Co. & the acts in amendment thereof.

To incorporate the Weymouth Terminal Ry. Co.

To amend the act incorporating the Cape Breton Ry. Extension Co.

To amend the act incorporating the Liverpool Marine Co.

To amend the act incorporating the Sydney Ferry Co.

Snow Hedges for Semi Arid Plains.

A Reinisch, Lawrence, Kan., writes: Eleagnus angustifolia, or Russian olive, deserves to be placed first in the list of trees for snow hedges. It was brought to this country by the Russian Mennonites, who settled in Kansas & Nebraska since 1837, & has proven to be perfectly hardy in its new home, adapts itself to nearly all situations & soils, & transplants easily. The wood is hard & heavy; bark shining brown; leaves willow shape, dark green, glossy, silvery white underneath; flowers small, deep yellow, very fragrant & appear abundantly in May & June; fruit a small nut with a whitish downy covering, ripening in October. It is one of the prettiest lawn trees on account of its contrast with trees of heavier foliage. Its value as a snow hedge consists in its adaptability to the most varying conditions of climate, remaining green when other trees become parched with drouth & hot winds, & coming out of the severest winters unhurt. It naturally grows bush-like & quickly makes a dense hedge, &, by trimming, a fine ornamental hedge. Its value as a contruction timber has not been fully tested, as it takes some time to prove its durability in the ground as a tie or post.—Railroad Gazette.

C.P.R. Reports Wanted.

Wanted copies of the annual reports for 1881, 1882, 1883, 1884 & 1886 in pamphlet form. Any one having copies is requested to communicate with The Manager, RAILWAY & SHIPPING WORLD, Toronto.

C.P.R. Prizes for Live Stock.—The C.P.R. Co. has donated 15 cash prizes, to be awarded at the Winnipeg Twentieth Century Industrial Exhibition next July, for thoroughbred cattle, bred & raised in Manitoba or the N.W.T. This is in line with the Co.'s policy in encouraging the live stock industry of the Canadian West by the importation of thoroughbred sires recently.

ready.

Snow on the White Pass & Yukon.

The fall of snow in Alaska & Yukon during the past winter has been unusually deep & the operation of the White Pass & Yukon Ry. has been attended with greater difficulties than was the case during the winter previous. The exact snowfall during the entire winter we have not been able to ascertain, but during Dec., 1899, the snowfall at Glacier, on the line of the road, was 90½ ins.; the fall at the summit of White Pass was 55 ins.; & at Log Cabin, between the summit & Lake Bennett, it was 74½ ins. The snowfall during Jan. was heavy, although not quite as much as during Dec. During Feb. & up to Mar. 10 there were snow storms at occasional intervals, with more or less obstruction to the passage of trains. In anticipation of trouble from deep snow a narrow gauge snow-plow of the ordinary rotary type, specially constructed for the road, had been provided in season, & owing to the drifting of the snow, which has been the

April 1899

THE

Railway and Shipping World

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Devoted to Steam & Electric Railway, Shipping, Express, Telegraph & Telephone Interests.

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The Engineer & the Road to the Yukon Gold Fields.

By Harrington Emerson.

[The following article, which was written in March last, deals with matters from a United States standpoint, which makes all the more forcible the remarks about the difference between the policies of the Canadian & U. S. governments in regard to aids to navigation & in attention to frontier matters. The admission that the White Pass & Yukon Ry. will divert the trade of the Yukon from U. S. to Canadian channels is significant. We are inclined to think Mr. Emerson is misinformed as to what he terms the annoyances & extortions of the Canadian customs officials at Log Cabin. If such abuses existed formal complaint would undoubtedly have been made. Since the article was written the W. P. & Y. Ry. has been completed to Lake Bennett, 41 miles from Skagway, & is now in operation, giving connection at Bennett with the river steamer service to Dawson. —EDITOR.]

He who leaves what is generally termed the Pacific Coast for the Klondike & the Alaskan gold fields, enters another world when he boards the north-bound steamer. It is not that the vessel differs from steamers of the same tonnage on the Atlantic Coast, for the engineer's handiwork must be more perfect for voyages to the outlying places of the earth where there are no repair shops. It is the passengers who make a different world, or perhaps it is fairer to say that among them the conventions of civilized life lose their force, & the sordidness & other elemental & unlovely instincts which civilization hides but does not eradicate, crop up unblushingly. A good part of the men northward bound are miners, animated not by patriotism nor hope of homestead, not by dream of glory, nor love of science, not by pride of conquest nor than it was when the great work was on. & were it not for the works of the engineer, the passage down or up the Yukon would to-day be lined with as many robber roosts, levying blackmail, euphemiously called toll, on all the travel & traffic, as was the Rhine in the Middle Ages. But the engineer, with his ocean steamers, wharves, railroads, aerial cableways, river boats, etc., came & converted what was once an expedition of extreme physical danger & hardship, & what next became a journey of extreme pecuniary danger & expense, into a rapid, safe, convenient & also

C. F. SISE.

The most remarkable part of the long road to the new gold fields is the short link which crosses the backbone of the continent. Elsewhere, the continental divide lies in Colorado, Wyoming, Idaho, but in southeastern Alaska, it is a rampart rising direct from the sea. At its base lie the blue waters of an arm of the Pacific. Fourteen miles inland is the summit, & immediately beyond are the head waters of the Yukon. A few coast passes are the only feasible highroads to the interior, & this gives them very great political as well as commercial importance. Further north between the Yukon & the ocean are those stupendous snow giants, Mount Saint Elias & Mount Logan, towering about 18,000 ft. in height.

The profiles here given, showing the two lowest passes from ocean to river, were drawn from his own surveys by Frank Reid, the engineer, who, at Skagway, in 1898, in the cause of decency, order & law, shot & killed "Soapy Smith," the leader of all the crooks & thugs with which the place was infested, & was in turn killed by him. Of all the many dead claimed by the dangers & diseases of the murderous trails, Reid alone rests under an imposing monument, erected in the forlorn little cemetery to show the gratitude of the citizens & as a permanent warning to evil-doers. The man was honored who had saved the town from a reign of terror, but the engineer began a greater work in his surveys, which were the beginning of a development, that in 18 months replaced the Indian hunter's foot-path with aerial cableways & a steam railway.

The profiles are worth studying. Lynn Canal is an inlet or fjord of the Pacific Ocean, & the lakes over the summits are the head lakes of the Yukon River. Although these summits are but 14 miles from the ocean, the distance down the Yukon to Bering Sea is 2,000 miles. Nowhere else in the world are the navigable head waters of a great river so near the same ocean into which it finally empties. It is as if the headwaters of the Ohio River were but 14 miles

ingly. A good part of the men northward bound are miners, animated not by patriotism nor hope of homestead, not by dream of glory, nor love of science, not by pride of conquest nor religious enthusiasm, not even by the pleasure of adventure, but impelled northwards solely by lust of gold. Dogging the footsteps of these pioneers is the motley horde of human parasites & beasts of prey, both male & female, & these & their ways emphasize the difference between the lust for gold & the pursuit of immaterial riches. No one tries to rob Dewey of his laurels nor Nansen of the honor due his adventures & discoveries, but if a man has secured an ounce of gold a thousand rise up in his path & try to take it away from him.

Owing to the absence of parasites, industrial, criminal & governmental, it was cheaper & safer to go to the Yukon ten years ago

C. F. SISE,

President the Bell Telephone Company.

cheap trip to the Arctic Circle. It is this cheapness that above all else will develop the resources of that far off region, making profitable great numbers of mines to-day unworkable. In California gravels containing as little as 5c of gold to the cubic yard are washed at a profit, but in the Klondike region all gravel that yields less than $15 a cubic yard is mined at a loss. It is too much to expect that far northern gravels can ever be worked as cheaply as in California, but it is not too much to expect that with cheaper labor, cheaper supplies, & above all, better appliances, five dollar gravels will in time have value.

in the world are the navigable head waters of a great river so near the same ocean into which it finally empties. It is as if the headwaters of the Ohio River were but 14 miles from New York Bay.

From Panama to the Fuca Straits there are but few harbors, but from Puget Sound northwards a whole coast system of mountains & valleys sank, in a former geologic age, several thousand feet, & thus formed the present sounds, canals, channels, inlets, bays, harbors, a land-locked water-way of marvelous beauty—& danger—stretching a thousand miles north of the sound cities, Tacoma, Seattle, Victoria & Vancouver. So smooth & placid is this water-way that Indians, in their dugouts, undertake trips of 1,000 & more miles along the coast, yet so dangerous is it that scarcely a week passes without some steamer striking or stranding on the dark

Track Supply Association.

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shores or sunken rocks. At the northern end of this inside passage & 90 miles from the sea is the head of Lynn Canal, which is 7 miles wide & from 135 to 413 fathoms deep, but the Wrangel Narrows, 100 miles further south, are only ¼ of a mile wide & 18 miles long, & so shallow that rarely a steamer passes through them without scraping on the bottom. At another point in the long inside passage conflicting tide currents swirl & rush 30 miles an hour, & this place can only be passed at slack water, either high or low.

At the head of Lynn Canal is Taiya Inlet, 14 miles long & but 1 mile wide, & into the head of Taiya Inlet empty the Taiya & Skagway Rivers, each making a long mud delta covered at high water, bare at low tide; & here the tidal range is very great, 16 or more feet. The Taiya & Skagway Rivers both flow rapidly down from the summits of the coast range of mountains. They are but torrents, only 14 miles long from source to deltas, & within a few feet of their head-waters are the head-waters of the Yukon; thus natural passes are formed from the coast to the interior. By no other route is the distance so short as up the Taiya River. There has always been an Indian village at Dyea, which is doubly favored by being at the extreme head of ocean navigation & nearest to the series of lakes, Crater, Long & Deep, which empty directly into Lake Lindeman. This lake in turn empties into Lake Bennett, which is but 40 miles from Dyea. From an engineering point of view the Skagway route is the better, as the White Pass at the head of Skagway River is 600 ft. lower than the Chilkoot Pass, but neither Indians nor miners used it. Its series of lakes, Summit, Middle & Shallow, are separated from Lake Bennett by a high divide, & flow by long & shallow streams into other lakes not so immediately available for reaching the Yukon. Although the distance to Lake Bennett is the same by survey over each pass, the most enthusiastic backers of the White Pass route have always considered it at least 10 miles longer, owing to its extreme & lasting difficulty for foot & horse travel. In former years at two seasons of the year only was travel possible over the Chilkoot Pass, in late winter when the snow was hard & the lakes frozen, & in late summer when the lakes were open for rafts & canoes. It is strange that this easy & natural highway for the Indian up the coast in a canoe, over the pass with a pack on his back & down the river on a raft, should have presented almost insuperable obstacles to civilized travel. The Indian in his dugout cared not for narrows, shallows & currents, tides & flats. He supplanted the Indian canoe, the sailboat, the little coast steamers, but with the difference that whereas the land engineer makes his own road on which he safely runs his engines, the naval engineer can only build a good steamer, which too often is wrecked owing to the culpable negligence of the U.S. government, quick enough to install revenue collectors, but exceedingly slow to chart, buoy and light dangerous channels.

Nearly 5,000 people a month make the passage from Seattle & other Puget Sound cities to south-eastern Alaska, & many thousand tons of freight are also carried, yet aside from a few buoys in Wrangel Narrows there is absolutely nothing provided by the government to aid the mariner in navigating those waters. The Canadian government, both on land and sea, is more prompt to act & to provide protection. It has a light-house on the Sister Rocks in the Gulf of Georgia, another at Cape Mudge at the entrance to Discovery Passage & yet another at Egg Island. The disastrous wrecks almost without exception have occurred in U.S. waters. As canoes gave way to ocean-going vessels in these unbuoyed & unlighted channels, the government pilot charts were improved with pasters suggesting that the chart was not more than 5 miles out of the way. Steamer after steamer was lost, the Mexico sank in Aug., 1897, on her return trip from carrying the first load of gold seekers, the Corona stranded in Nov. of the same year, the Clara Nevada ran on a rock & burned or blew up with a loss of all on board in the following Feb., & since then a dozen other steamers have either grounded or been totally wrecked. These dangers & losses continue to date. On Feb. 15, 1899, the Humboldt, a fine California steamer, went on the rocks between Juneau & Wrangel, & was in gravest danger; early in Mar. the Dirigo stranded but was finally dragged off with severe damage; later in Mar. the Tees, a Canadian steamer, was reported fast on the rocky Alaskan coast & on Mar. 29 the City of Topeka of the Pacific Coast Steamship Co. went fast on a ledge in Wrangel Narrows.

As the engineer was not able to take the survey & improvement of the sea highway out of the hands of the government he turned his attention to terminals for the carriers both by land & water which his skill had evolved, & here also the transition from the perfectly safe landing of the Indian canoe on the flat beach above high water to the equally safe landing of the ocean steamer at a deep sea wharf, beyond the fall of the lowest tide, has been through intermediate steps expensive & dangerous. The first load of gold seekers in Aug., 1897, found no wharves at Dyea or Skagway, & the hastily gathered mining outfits were either lightered ashore at great expense, or at low tide dumped off the steamers to be submerged by the returning waters unless rapidly moved by waggons whose owners charged extortionate rates. Prices for packing over the pass had been 12 to 15c. a pound in the old days of Indian-back, but they rapid-

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Between the final triumph of modern engineering, the railroad, & the natural highway of the savage, there were many stages of improvement which were more toilsome, dangerous & expensive than the conditions they are supposed to better. There was no longer easy & sympathetic acquiescence in nature's whims when the great gold rush to the Yukon began in Aug. 1897. Just as the engineer has substituted his work for all other instruments or vehicles of transportation over the White Pass, so also it is the engineer who with his ocean steamers has

her return trip from carrying the first load of gold seekers, the Corona stranded in Nov. of the same year, the Clara Nevada ran on a rock & burned or blew up with a loss of all on board in the following Feb., & since then a dozen other steamers have either grounded or been totally wrecked. These dangers & losses continue to date. On Feb. 15, 1899, the Humboldt, a fine California steamer, went on the rocks between Juneau & Wrangel, & was in gravest danger; early in Mar. the Dirigo stranded but was finally dragged off with severe damage; later in Mar. the Tees, a Canadian steamer, was reported fast on the rocky Alaskan coast & on Mar. 29 the City of Topeka of the Pacific Coast Steamship Co. went fast on a ledge in Wrangel Narrows.

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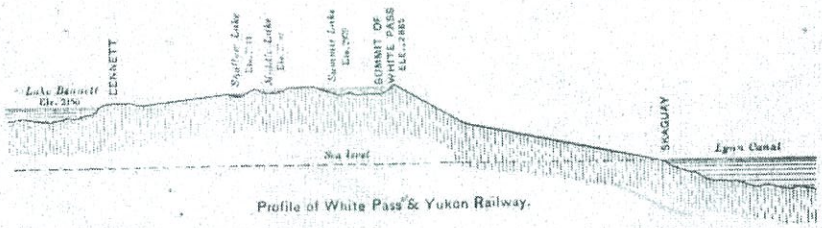
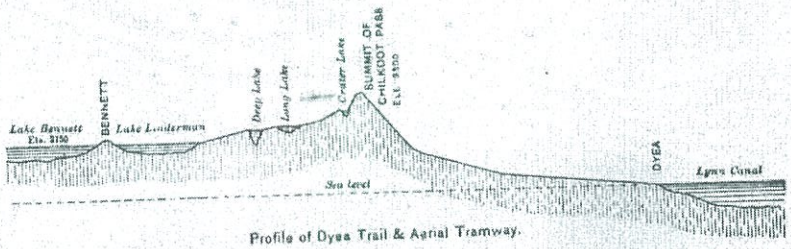
A comparison of the two routes to Dawson, down & up the river, should have been sufficient to convince one as to their relative values. Dawson is 1,600 miles from the Puget Sound cities. Of this distance 1,000 miles are by inland sea, 40 are by mountain pass, the balance down lakes & rivers. This route is open 8 months in the year. By the other

route it is over 4,000 miles to Dawson, 2,700 miles of North Pacific Ocean to St. Michaels, & about 1,500 miles of treacherous river touching the Arctic circle, with bars at mouth & elsewhere. Boats are limited to a 3 ft. draft, & the river mouth is open but 3 months in the year. The extent of the transportation delusion is evidenced by the increase of steamboats on the lower Yukon from scarce a dozen in 1897 to 110 by the summer of 1898. These boats represented capital. The gold seekers went the other way & the only real rivalry that there has ever been for a permanent Yukon route is between Dyea & Skagway, between the Chilkoot & White passes. When the rush began, one of these was an Indian path, the other nothing, but what it lacked in merit Skagway made up in boisterous advertising. The Indian village at Dyea developed into a town, the U.S. speculation on the Skagway flats was platted & the city of Skagway started. It first succeeded in building a wharf to deep water & this was the beginning of its supremacy, because it became easier & safer to land there. Beyond the landing this trail was utterly unfit for travel, but the first arrivals were too busy pushing on to warn those who might follow, & both town boomers & steamer lines assured ticket buyers that whatever might have been true last week, now the trail was indeed open.

Above its delta, the Skagway River, a mountain torrent, occupies nearly the whole width of the valley. The mountains rise steeply on each side & every spot that is not washed bare of earth is overgrown with heavy timber. If in rare places the river has a shore, it is covered with boulders & loose rock, either terminal or lateral moraines of the former Skagway glacier, or the result of landslides. For 10 miles from the sea, the fall of the Skagway River is not rapid but above the last fork, the stream rushing down from the summit of the White Pass is a rocky torrent, in adeep canyon bed. The rise in the last four miles below the divide is about 2,000 ft. Over 12,000 people landed at Skagway in the first year after the rush, or between Aug., 1897 & July, 1898. Most of these unfortunates crossed the pass dozens of times carrying their goods in relays, a man load at a time, a slow way of transporting a ton or two of supplies a distance of 30 miles over almost impassable



Profile of White Pass & Yukon Railway.

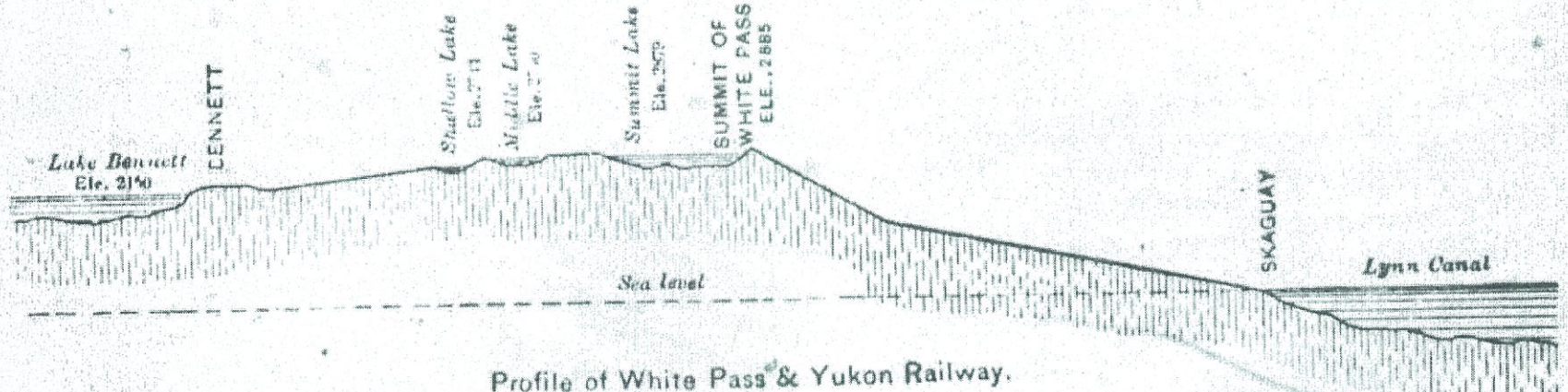


Profile of Dyea Trail & Aerial Tramway.

Six to seven horses or mules made a string under the care of one man, the driver riding on an extra animal, sometimes in front, often behind. Rates for packing fell to 20 & then to 12c. a pound & fortunes were made, & squandered, in the business. Six horses carried 1,500 lbs. of net freight & earned gross $180 to $300. Expenses for a round trip were $40 in wages, $12 hotel bills, $25 for horse feed, $20 wear & tear & $15 toll, making a total of $112. Some packers who had 40 to 50 horses on the trail put in their own boarding camps, thus reducing expenses, & the most energetic & successful & reliable earned for several months over $1,000 a day net on an investment of $2,000 to $3,000. One energetic man interviewed the arriving Klondikers at Seattle, contracted to deliver their freight at Bennett, required a part payment in cash, used the cash to buy his horses & pack-saddles & went north on the same steamer with his customers & fulfilled his contract.

But the enormous amount of freight going to Dawson by way of the passes, nearly 20,000 tons, prompted G. M. Brackett, an experienced & energetic railway contractor, to begin a wagon road from Skagway to the summit. He started early in the fall of 1897 and pushed the work with great energy, hoping to be ready for the great spring rush, but in this he was disappointed. The remoteness of the region, with mails 10 days apart, labor, climatic & financial difficulties all combined to prevent rapid work. Nevertheless Mr. Brackett succeeded in building an excellent road for about 10 miles, marring it however, and from an engineering point of view ruining it, by the fearful grade over Porcupine Hill, a grade so steep that 2 horses with a single

Mr. Brackett had built his wagon road without authority & there was indeed no time to wait for it, as the U.S. Government is always several years behind requirements in frontier matters. Very great friction developed between the wagon road company & the packers. The latter drove their pack horses up the frozen bed of the river & thus avoided the new road, but Brackett completed a short piece of road around which it was impossible to go and there he erected his first toll gate. While the struggle was going on in Alaska Brackett was not idle in Washington & secured the passage of a resolution by Congress giving the Secretary of the Interior jurisdiction over Alaskan roads with authority to grant toll privileges. From the Secretary of the Interior Brackett obtained authority to levy a toll of 2c a pound on all freight, $10 on each wagon, $1 on each foot passenger, horse, sheep, dog or other animal. These rates were excessive. This wagon road, owing to its heavy grades, was none of the best. In building it Mr. Brackett had in many places simply improved the previously existing trail made by the packers themselves. The road was only built for 11 miles, yet without proper investigation, without any comprehension of the actual conditions or of the equities, the privilege was granted to levy prohibitive tolls on all the enormous traffic using this pass. There was not even any possibility of appeal, as no court had any jurisdiction over tolls placed by act of Congress at the discretion of the Secretary of the Interior. The wagon road, however, experienced difficulties. The Chilkoot Pass route had not been idle, & from the first as a man pack route it had been preferred to the White Pass because shorter, with better approaches & with more direct waterways to the head of Yukon navigation. The first improvement on this pass was made when a horse whim was anchored at the summit of Chilkoot, & by this means loads of over a ton could be hauled up on sleds, thus putting this route far ahead of the Skagway trail for heavy freight as well as for single loads. After the first season the horse gave way to a gasoline engine, his last act being to wind his own successor to the top. The gold seekers could drag their own loads on sleds to the foot of the summit, there turn them over to the whim, be hauled up, coast down the other side & go on



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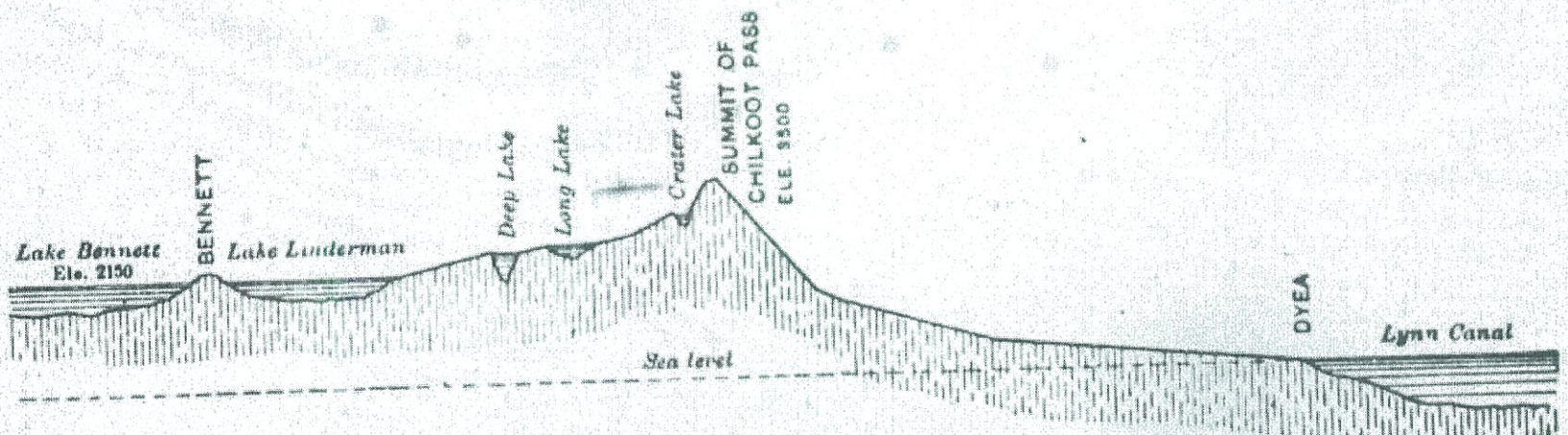

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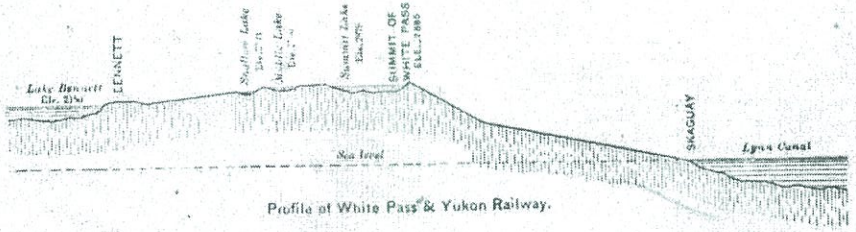

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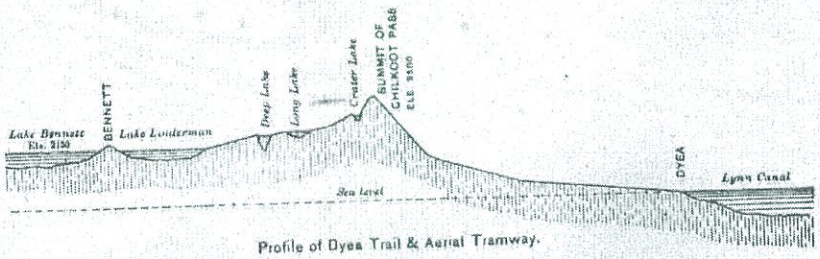
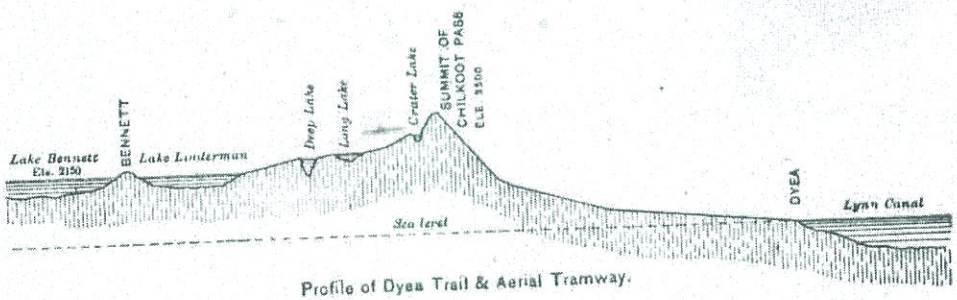


Profile of Dyea Trail & Aerial Tramway.

Mr. Brackett had built his wagon road without authority & there was indeed no time to wait for it, as the U.S. Government is always several years behind requirements in frontier matters. Very great friction developed between the wagon road company & the packers. The latter drove their pack horses up the frozen bed of the river & thus avoided the new road, but Brackett completed a short piece of road around which it was impossible to go and there he erected his first toll gate. While the struggle was going on in Alaska Brackett was not idle in Washington & secured the passage of a resolution by Congress giving the Secretary of the Interior jurisdiction over Alaskan roads with authority to grant toll privileges. From the Secretary of the Interior Brackett obtained authority to levy a toll of 2c a pound on all freight, $10 on each wagon, $1 on each foot passenger, horse, sheep, dog or other animal. These rates were excessive. This wagon road, owing to its heavy grades, was none of the best. In building it Mr. Brackett had in many places simply improved the previously existing trail made by the packers themselves. The road was only built for 11 miles, yet without proper investigation, without any comprehension of the actual conditions or of the equities, the privilege was granted to levy prohibitive tolls on all the enormous traffic using this pass. There was not even any possibility of appeal, as no court had any jurisdiction over tolls placed by act of Congress at the discretion of the Secretary of the Interior. The wagon road, however, experienced difficulties. The Chilkoot Pass route had not been idle, & from the first as a man pack route it had been preferred to the White Pass because shorter, with better approaches & with more direct waterways to the head of Yukon navigation. The first improvement on this pass was made when a horse whim was anchored at the summit of Chilkoot, & by this means loads of over a ton could be hauled up on sleds, thus putting this route far ahead of the Skagway trail for heavy freight as well as for single loads. After the first season the horse gave way to a gasoline engine, his last act being to wind his own successor to the top. The gold seekers could

or lateral moraines of the former Skagway glacier, or the result of landslides. For 10 miles from the sea, the fall of the Skagway River is not rapid but above the last fork, the stream rushing down from the summit of the White Pass is a rocky torrent, in adeep canyon bed. The rise in the last four miles below the divide is about 2,000 ft. Over 12,000 people landed at Skagway in the first year after the rush, or between Aug., 1897 & July, 1898. Most of these unfortunates crossed the pass dozens of times carrying their goods in relays, a man load at a time, a slow way of transporting a ton or two of supplies a distance of 30 miles over almost impassable trails. Most of the packing was done on man back & extraordinary loads were carried. One of the Indians on Chilkoot carried in one load 247 lbs. over the summit, & on the whole, nothing is so generally efficient as a man. Dogs were fitted with pack saddles & given loads of 10 to 30 lbs., & this was worth while, at 60c. a pound. Goats were used, rafts, canoes, rough boats, any & everything that could be impressed into service. Horses were shipped to Skagway by the hundred, & there, on the worst trail in the world, they died also by hundreds, but during this first summer a horse was not able to carry as much as a man. It was the packers, the owners of the horse trains who made the first trail, for the gold seekers had no time to join in any "good road movement," but the packers organized, instituted compulsory service & by the spring of 1898 had succeeded in opening a very fair bridle path, making this trail from this time on essentially a horse trail, & thus scoring a second triumph over Dyea. The horses between Skagway & Bennett each carried 250 lbs. besides feed for the round trip of 4 days.



Profile of Dyea Trail & Aerial Tramway.

climatic & financial difficulties all combined to prevent rapid work. Nevertheless Mr. Brackett succeeded in building an excellent road for about 10 miles, marring it however, and from an engineering point of view ruining it, by the fearful grade over Porcupine Hill, a grade so steep that 2 horses with a single sled loaded with only 400 lbs. could scarcely climb it coming towards Skagway. Going down this same hill sled runners are generally wrapped with heavy chains, in addition to the very effective automatic brakes used on all Skagway sleds. This brake consists of 2 sharp steel prongs bolted underneath the back end of the shafts & pointing downwards. When the horse pulls these are lifted off the ground or snow, but when on a down grade, the sled runs forward on to the shafts & presses the prongs deep into the ice or snow. Another effective form of brake is a dragging hook, bolted loosely through the back end of the runners. Ordinarily it is turned up & rests on top of the runner, but on down grades it is turned down so that the sharp end of the hook sticks into the runners' track. On this hook the driver will stand, and thus hold almost any load. In Jan., 1899, a 4 horse double bob sled, not being equipped with these brakes, rushed the teams down the steep grade of Porcupine Hill & forced the leaders over the precipice, several hundred feet to the river below.

Pass because shorter, with better approaches & with more direct waterways to the head of Yukon navigation. The first improvement on this pass was made when a horse whim was anchored at the summit of Chilkoot, & by this means loads of over a ton could be hauled up on sleds, thus putting this route far ahead of the Skagway trail for heavy freight as well as for single loads. After the first season the horse gave way to a gasoline engine, his last act being to wind his own successor to the top. The gold seekers could drag their own loads on sleds to the foot of the summit, there turn them over to the whim, be hauled up, coast down the other side & go on their way rejoicing over the frozen lakes & smooth trail to Bennett.

In Aug., 1897, work was started on the Chilkoot R.R. & Transportation Co., on the Alaska R.R. & Transportation Co., & on the Dyea Klondike Transportation Co., all three of them aerial cable trams. These three were ultimately consolidated into the Chilkoot Pass route, & but one line finished in April, 1898. A large force of men was kept busy all winter, but very little beyond shovelling snow was accomplished from Dec. 10, 1897, to Mar. 15, 1898. The tram begins 9 miles from Dyea at Canyon City, to which place a wagon road is almost without grade. There are 2 loops, 1 from Canyon City to Sheep Camp, 4 miles, & the other from Sheep Camp over the summit, & ¼ mile down the other side. This loop is 4¼ miles long. The trolley automatically switches from one loop to the other, & the load is limited to 400 lbs., generally carried in boxes 40 x 20 x 24 ins. With its level wagon road & these trams in operation, the Dyea trail should & could have beaten its rival Skagway as to rates, but it

could not handle the freight offered, & there were long delays, charges of favoritism, & enough freight was secured at the Skagway rates of 8c. & up to keep the trams busy, so no reduction was made. It was, nevertheless, this Dyea competition which forced a reduction of tolls on the Brackett road from Skagway, the rate being lowered to 1c. a pound from Skagway to Summit, & ¾c. a pound to those who made their way up the river bed. Some packers also threatened to build a new trail of their own, & one energetic man with over 100 tons of freight to carry, was bribed from so doing by a free pass for his stuff.

All these transportation, financial & competitive struggles were around & about the passes, the stretch from salt water to lakes. From the head of Lake Bennett down to Dawson, "over the ice" as it is called, the travel in winter is only by dog team, although this year one mule & one horse made the trip out. The Yukon sleds are 16 ins. wide, 6 ft. long, 8 ins. high, & strongly braced. Some are made with a gee pole on the right side, & the driver straddles the rope or chain by which the dogs pull. The preferred sled this year is the basket pattern with plow handles behind to which the driver clings. Four to eight dogs make a team. On a good smooth trail the native dogs, "insiders," as they are called, one-quarter, half, or even three-quarters wolf, will drag 100 lbs. to the dog. These animals are thickly furred, & seem to enjoy extreme cold. They are fed on boiled rice, corn-meal & bacon, & will not eat dog-biscuit. Outside dogs cannot stand the extreme cold, are not as a rule as good pullers, & are miserably unhappy. At Skagway good insiders are worth from $50 to $100; outside dogs can be bought for $10 to $20. Up the White Pass & through fresh snow dogs cannot pull 15 lbs. The extreme difficulties of the White Pass make a dog team trip from Dawson to Skagway much easier than from Skagway to Dawson, as the dogs are not worn out before they are fairly started.

The rapidity of travel with a good dog team is remarkable. T. Crahan left Dawson Jan. 28, 1899, at 9.45, & reached Skagway Feb. 12, at 4.45 p.m. He had 2 in his party, & a 4 dog team to haul the equipments. While on the trail he fed his dogs once in the 24 hours, at night, each dog receiving 2½ lbs. of food, which consisted of 1½ lbs. of thoroughly boiled bacon, ¾ lb. of well-cooked rice, & ¼ lb. of cooked corn-meal. The distance is full 600 miles, but although the dogs averaged more than 40 miles a day they were in good condition. On Jan. 29 I turned over to M. A. Mahoney at Tagish 2,000 lbs. of U.S. & Canadian mails. He had 4 sleds with 5 fine dogs to each sled, & on each sled he loaded 500 lbs. of mail or 100 lbs. to each dog. He reached Dawson on Feb. 26. Returning he left Dawson Mar. 21 at 9 a.m. with one passenger, the contract being to land him in Skagway in 14 days for $700, or to forfeit $100 for every day over that time. He pulled into Skagway on the afternoon of Mar. 31 at 5 o'clock, having made the trip in 10 days & 8 hours, or at the rate of 55 miles a day. The team consisted of 6 huskies (Arctic dogs), & he carried no supplies with him, buying everything for himself & dogs at the bunk houses along the river. If a dog team has to carry its own food & that of the driver, & 30 to 40 lbs. of blankets, robes & other equipments, its radius of travel is very limited. Mahoney's teams could barely have reached Dawson carrying their own supplies & no extra freight whatever. It is because there is no food for horses along the trail that these animals or mules are not used. A good horse can drag about 2,000 lbs. over a fair trail on a food allowance of 40 lbs. a day. He can travel through fresh snow that would stall any dog team, but the latter can travel over crusted snow that would break under horses. Wherever the food supply permits, freighting is done with horses & mule teams, as between Skagway & Tagish 100 miles towards Dawson, but for light & rapid running from place to place dogs are preferred. Each dog is as much trouble to care for, & more trouble to feed than a horse.

During the summer of 1898 pack trains were in full action over the White Pass, & the trams over the Chilkoot, & the healthy rivalry between them prevented too great extortion. About this stage of development civilized modes of transportation may be said to have overtaken in convenience & cheapness the primitive savage methods. It was just about as cheap to send goods over in July, 1898, as in July, 1897, before the rush had begun, but a new competitor now appeared in the field that was for all time to settle the supremacy of Skagway. This new comer was an international railroad, whose survey ran 20 miles through U.S. territory from tide water at Skagway to the summit of the pass & the international boundary, & thence 325 miles to Fort Selkirk, on the Yukon River, below White Horse Rapids & other dangers, & but 174 miles above Dawson. This railroad is now in operation to the summit of White Pass, & much of the grading is done for 20 miles more to Lake Bennett. If it should stop here the aerial tram could still prove a dangerous rival, because the capital charges are so much less, operating expenses less, & its capacity could be easily increased to 100 tons a day. The difficulty has been, not in transporting, but in handling the freight at the two termini, where accumulations caused almost inextricable confusion & long delays.

Freight rates from Dyea to Bennett by way of the tram are, in Mar., 1899, 3½c. a pound, & the same by the railway. From the summit

Lees says the Co. held itself out as a common carrier & took & carried goods & passengers on its line for hire. From July 30, 1898, until May 20, 1899, Mr. Lees paid the Co. $49.55 for railway fares, & he claimed that the Co. has no right to collect that or any amount by law, because it had not complied with the provisions of the Railway Act. He therefore claimed that he was entitled to the return of the money he had paid, & also for three times the amount of the money paid. He based his case on the section of the Railway Act which requires a railway company to publish in the Canada Gazette for a certain period its rates, & the same must be approved by the Railway Committee. For non-compliance the Railway Company must return the fares, & three times the fares, to the passenger. It was shown that the Co. had not carried out these requirements of the Railway Act, & for that reason the judge gave a decision for Mr. Lees. Counsel for the defendants contended that Mr. Lees had paid the money voluntarily & had received value for the services rendered. An appeal will be entered against the decision. A jury had been secured to try the case, but it was not referred to them.

From Ottawa comes an unconfirmed press report that there is a probability of this line, after it is completed next summer, being secured by the C.P.R. It is claimed that it will shorten the passenger time between Ottawa & New York by three hours.

Pontiac Pacific Jct.—At a special meeting of shareholders in Montreal Dec. 15, the acceptance by the directors of H. J. Beemer's contract for building of 9 miles of railway from Aylmer to Hull was ratified. The issue of $180,000 bonds as collateral security to him was approved of.

Pullman-Wagner.—By the consolidation of the Pullman & Wagner palace car companies, concluded Dec. 30, W. E. Vanderbilt, F. W. Vanderbilt, W. S. Webb & J. P. Morgan became directors of the Pullman Co. When the consolidation plan was agreed upon in Chicago in Oct. last, it was stated that it would not be many months before the Vanderbilts had a man of theirs as President of the Pullman Co. The President at present is R. T. Lincoln, son of Abraham Lincoln. The capital stock of the Pullman Co. is $54,000,000. By the issuing of 200,000 shares to pay for the Wagner Co., it became $74,000,000, but it is believed generally that it will be increased to $100,000,000. The capital of the Wagner Co. was $20,000,000. One of the conditions believed to have been attached to the consolidation, though not publicly announced, was an agreement by the Pullmans to turn over to the Vanderbilts all their holdings in the Boston & Albany & the Boston & Maine railroads. Such a transfer would help the Vanderbilts in new territory.

United Counties Ry.—There is no further information about the purchase of this line in the interest of the Rutland Ry. Co. The authorized capital of the U.C. Co. is $100,000 which is said to have been distributed largely for "services," very little having been paid up. The road has not done well, as it runs through a poorly populated district, the Co. has had considerable difficulty in meeting its engagements & a number of suits have been entered against it. The road is bonded to the fullest extent & the 20 miles between Iberville & St. Robert are to be offered for sale by the sheriff at St. Hyacinthe, Jan. 26, under a judgment held by the Sisters of the Precious Blood. (Dec. '99, pg. 346.)

White Pass & Yukon.—The earnings for the week ended Dec. 7 were $4,100, making from the opening of the line to Dec. 7, $859,719.

The case of Wilkinson vs. Graves which came up for hearing in the Queen's Bench Division, in London, Eng., the first week in December, before the Lord Chief Justice & a special jury, was an action by C. H. Wilkinson, of London, Eng., to recover from S. H. Graves, member of the firm of Close Bros. & Co., of London & Chicago, damages for alleged libel. It appeared that on May 7, 1898, defendant addressed a letter to E. Midgley which imputed blackmail by plaintiff of Close Bros. & Co. by demanding money by threat in connection with the promotion of a company for the construction of the White Pass & Yukon Ry. Defendant admitted writing the letter complained of, but said his firm was interested with others in the Assets Development Co., Ltd., formed for the purpose of promoting the scheme, & that the letter was privileged & justifiable & written without malice in the belief that it was true. After hearing addresses of counsel, his Lordship summed up remarking that it was a striking fact that plaintiff, who was at the head of a big financial scheme, was an undischarged bankrupt, having incurred debts to the extent of £75,000, while the assets were only £10, & the trustees in bankruptcy were certain not to realize a single penny. Under the protection of enormous privileges powers were exercised which were a public scandal, & a scandal which suggested that the law in respect to the formation of public companies should not be allowed to continue as it is. He had ruled at the close of the case, & he repeated the ruling, that the occasion upon which the words complained of were used was a privileged occasion, & that in itself put an end to the case, unless the jury were of opinion that at the time defendant wrote the letter he was actuated by express malice, which alone would deprive defendant of his protection of privilege. The jury, without leaving the box, returned a verdict for defendant, and judgment was entered for him with costs.

White Pass and Yukon Ry.—Reports from the Yukon Territory state that V. I. Hahn, Chief Engineer W.P. and Y. Ry., is making a survey in the Windy Arm district, with a view of constructing a loop line so as to connect with Toochi and Conrad City. No decision had been reached, it was stated, when construction was to be started, or as to how it was proposed to run the loop.

... its Deseronto sta-

December 1905
p 569

Klondike Mines Ry.—This 3 ft. gauge railway is under construction from Dawson to Stewart River, Yukon Territory, 84 miles. About eight miles of grading has been completed from Dawson, and 4½ miles of track were laid in 1905. A bridge about 300 ft. long over the Klondike River and another one of two 75 ft. spans over a slough at Klondike City have been built. About two mines of the line have been ballasted, and also the spur line of about three-quarters of a mile to Klondike city. As originally planned the line was to start from Klondike city, and a short piece of track was laid. Subsequently the starting point was fixed at Dawson, and work done last year was from that point. During the current year it is expected complete the line to Grand Forks, about 12 miles from Dawson, and from Grand Forks to Sulphur Springs, 17 miles, and it is expected that the line will be completed to Stewart River in 1907. The contractors are O'Brien & Mackenzie, of Dawson. H. B. Smith is Chief Engineer for the Grand Forks and Stewart River Corporation (Ltd.), which is financing the construction, and F. W. O'Brien is in charge of construction. The Grand Forks and Stewart River Corporation is an English company with offices at Billiter Building, Billiter St., London, Eng. The directors in London are John Latta, of Lawther & Latta, shipowners, and John

February 1906

p63

White Pass and Yukon Ry.—Reports from Dawson, Yukon, state that it is expected to start construction on a line from Whitehorse to the copper mine camps, about 20 miles, early next year. It is expected that the extension will handle 1,000 tons of ore daily.

October 1907

British Yukon Ry.—Application will be made next session of the Dominion Parliament for an act authorizing the company to construct a line from its present railway at or near White Horse in the Yukon territory, northwesterly to a point on the Tahkeena River. Power is also asked to issue bonds upon the line of railway so constructed. The Yukon Council at a special session has under consideration the proposal of the company to construct 12 miles of line through the White Horse copper fields.

We are advised that the B.Y. Ry. contemplates the construction of a track to leave the company's present main line some five or six miles south of White Horse, Yukon Territory, and to proceed in a generally northwesterly direction to tap all the copper properties in the district of White Horse. The development of these properties has now reached such a stage as to warrant serious consideration of the construction of this track. The surveys, we are informed, have not yet been completed. (See White Pass and Yukon Ry. Oct., pg. 743.)

November 1907
P829

White Pass and Yukon Ry.—A. L. Berdoe, General Manager, according to a Seattle, Wash., despatch of Dec. 4, said there were about 500,000 tons of copper ore in sight at the mines which would be reached by the branch line which it is proposed to construct. It is hoped to start the construction early in the spring. The company also proposed to erect bunkers at Skagway, Alaska, having a capacity of 5,000 tons for the storage of ore. The ore will be shipped from Skagway to the smelters on Puget Sound. (Nov., 1907, pg. 829.)

January 1908

p23

White Pass and Yukon Route. A meet-
of shareholders of the British Yukón
the subsidiary company owning the
nadian portion of the company's railway,
s called to be held at Ottawa, May 27,
authorize the directors to issue deben-
res or other securities to the extent of
,000 for every mile, not exceeding 16
the company's branch line of railway,
tending from near mile post 106, as
w constructed and operated south of
hitehorse, Yukon Territory, northwesterly
wards the Tahkeena River. The issue
bonds is to be secured upon the branch

June 1908

Klondike Mines Ry.—Latest despatches from Dawson, Yukon, stated that on Aug. 30, grading had been completed to Cook's roadhouse, and that track had been laid to Homestead Gulch. The big trestle at that point was expected to be completed early in Sept. It was expected that a train service would be put in operation to King Dome at an early date. (May, pg. 255).

October 1906
P533

Klondike Mines Ry.—An order has been issued by the Board of Railway Commissioners authorizing the opening for traffic of this line from Dawson City to Bonanza, Yukon.

Application will be made at the current session of the Dominion Parliament for an act extending the time for the construction of the line, and confirming an issue of bonds and other securities of the company. (June, pg. 327).

December 1906

7719

Toronto-Oakville run. Capt. J. Tow- merly captain of the str. Ocean, will harge of the Greyhound.

e annual meeting of the Canadian Ma- gineers' Association, the following offi- ere elected: Hon. President, O. P. St. President, H. Parker; 1st Vice-Presi- V. J. Woodward; Secretary, S. A. Treasurer, H. Brownley; Inside Guard, wler; Auditors, D. L. Foley & E. J. Council, T. Good, W. Horwood, R. P. J. Carr & J. E. Kane.

Polson Iron Works, Toronto, is building posite steam cutter for G. Cooderham, of ty, to act as tender to his yacht Oriole. all be 36 ft. long, 9 ft. beam, 3 ft. deep, rticle engine 6"x7" & Clyde boiler 45"x66" 150 lbs. pressure. She will have steel & be planked with clear B.C. pine. ill be powerful enough to tow the Oriole essary. She was designed & is being nder the superintendence of W. E. y, naval architect, Toronto, & will cost 1,500.

Polson Iron Works, Toronto, is build- handsome steel passenger steamer for Richelieu River Navigation Co. of St. Que., to be called the Majestic. She ft. long, 22½ ft. beam & 6 ft. deep, vertical compound jet condensing en- 14"x28", with 18" stroke, large Fitzgib- boiler containing 1,400 ft. heating surface, 150 lbs. pressure. She will be fitted with e light throughout, including a powerful h light, & is to be finished by June 21 The guaranteed speed is to be 15 knots. ost is in the neighborhood of $20,000.

Province of Quebec Shipping.

Canada Atlantic Transit Co. is organ- a barge line in connection with the Co- Landing elevator, & is building floating ers to transfer the grain at Montreal.

widening & deepening of the ship chan- tween Montreal & Quebec, the increase dition of the contract system Engine Works. The boat is to be completed by May 1, & will run between Ottawa & Thurso daily. Her passenger capacity will be 300.

Yukon & Northern Navigation Matters.

Capt. J. Irving, of Victoria, B.C., is about to build a steamer on Lake Bennett.

Capt. R. A. Talbot is building 3 steamers at Seattle for the Alaska trade, to cost about $20,000 each. They are to be flat bottomed, 120 ft. long, 23 ft. beam, 12 in. draft light and 3½ ft. loaded, each to accommodate 400 passengers and 200 tons freight.

The Gold Mining Steamship Co., with headquarters at Victoria, B. C., is going to have built there 2 stern wheel steamers, 130 ft. long, 28 feet wide and 4 ft. deep. One is to be ready by May 1 and is to be sent to St. Michaels for service on the Yukon, the other will be sent north in sections and is to be ready to leave Lake Bennett when navigation opens.

It is reported that marine insurance underwriters have become alarmed over the plans of steamship companies to cut down the time on the run to Alaskan points and are seriously considering the question of calling a halt. The rates on vessels in that service during the last two years have been from 2 to 5 higher than on other coastwise vessels. Last year, when the great rush to the north was on and boats of all descriptions were pressed into the service, the premiums paid in some instanc were fabulously high. Even the Pacific Coast S. S. Co., which has been running steamships to Alaska for 40 years and whose vessels have been constructed with full knowledge on the part of the owners of the necessities for ships in that service, had to pay largely increased rate.

At a meeting in Seattle, Jan. 16, of representatives of all companies operating steamers between British Columbia & Puget Sound ports & southwestern Alaskan ports the following rates were fixed:

	1st	2nd

way than from Circle to Dawson shows what he had to contend with. The Sovereign has been pulled up on the bank at Circle City & the Victoria is between her and the river. The Tacoma, of the Empire line fleet, is almost as good as wrecked. She is in a very open position in the middle of the Yukon, 12 miles below Circle. The ice is piled up high around her. The Seattle, of the same fleet, has very little chance of getting free. She is some distance above Circle and to a certain extent protected by an island. The impression is that, at least, 20 steamers will be broken up when the ice moves.

The Canadian Development Co., with headquarters at Victoria, B.C., commenced operations last year & constructed 3 large steamers, the Victorian, Canadian & Columbian, which are now in winter quarters on the upper Yukon river. These steamers are 150 ft. long by 33 ft. beam, & have a speed of 15 miles an hour, & each is fitted with 14 water-tight compartments. Electric lights are fitted throughout. Each steamer has berths for 250 passengers, & a freight capacity of 200 tons weight. After arrival at Dawson in Aug., 1898, the Columbian & Canadian were placed upon the route between Dawson City & the White Horse rapids, & made several trips. The Co. is reconstructing & fitting with powerful boilers & machinery the Anglian, a somewhat smaller steamer, which will be placed in condition for the carriage of passengers and freight. In course of completion at Dawson City are 2 fast & powerful steel steamers of medium size & modern design, which were constructed in England, & will be used in connection with the larger steamers. To handle the through traffic from the temporary terminus of the White Pass Ry. at the head of Lake Bennett to the White Horse rapids, where connection is made with the steamers to & from Dawson City, the Co. has under construction in the East a fast packet steamer for the lake work. This boat is being built of steel, with a length of 115 ft. & 24 ft. beam. She will have 3 fore-and-aft and 7 transverse water-tight compartments. The boiler is of the Yarrow water-

2-1899

Province of Quebec Shipping.

e Canada Atlantic Transit Co. is organ- a barge line in connection with the Co- Landing elevator, & is building floating tors to transfer the grain at Montreal.

e widening & deepening of the ship chan- tween Montreal & Quebec, the increase ots, & the abolition of the contract system uoys is being urged on the Dominion nment by the Montreal Board of Trade.

ice is given of application to Dominion ment for an act amending the act incor- ng the Quebec Steamship Co. by grant- ower to the Co. to buy & sell fruit & goods & merchandise, & to carry on the ss of general merchants, & for other oses.

sponse to a request of the Montreal of Trade for the establishment of an alty Court in that city, the Minister of proposes to establish a deputy regis- here whose emoluments will be derived the fees in the cases, & Judge Routhier end to the actions themselves.

M. Robertson has been appointed cap- the Ottawa River Navigation Co.'s mpress, to succeed the late Capt. Capt. Robertson was for several s purser of the str. Empress, & in 1897 urser of the str. Sovereign. During the he served as purser for the Co. he medicine at McGill University, & in btained the degree of M.D., passing nors. At present he is attached to the the Royal Victoria Hospital, Mont-

Ottawa River Navigation Co. is hav- wooden propeller built at Toronto by mpson, to ply on the Ottawa River. mensions are: Length, 100 ft.; beam, depth, 7 ft. She will be fitted with d an jet-condensing engines, cylinders in., with 16 in. stroke; usual feed don- gine pumps; boilers, 120 in. long, 66 meter; steam pressure, 160 to the sq. The contract speed is to be 14 knots. machinery is being built by the Polson

ning steamships to ... whose vessels have been constructed with full knowledge on the part of the owners of the necessities for ships in that service, had to pay largely increased rate.

At a meeting in Seattle, Jan. 16, of representatives of all companies operating steamers between British Columbia & Puget Sound ports & southwestern Alaskan ports the following rates were fixed:

Passengers.	1st Class.	2nd Class.
To Wrangel & points south	$17	$10
To Juneau	20	12
To Skaguay and Dyea	25	15
Wrangel to Skaguay	10	

General merchandise—to Wrangel, $8; to Juneau, $9; to Skaguay and Dyea, $10.

Horses & cattle, in lots of less than 3, to all Alaskan points, $22.50 each; in lots of more than 3, $20 each. Dogs, to all points, $5.

Dressed meat, 2½ times the rate on merchandise. Live hogs, 4 times the merchandise rate. Sheep, merchandise rate, estimated at 500 lbs. each.

Lumber, per thousand ft., to Skaguay & Dyea, $9; to Juneau, $8; to Wrangel, $7.

Hay, per ton—to Skaguay & Dyea, $15; to Juneau, $11.50; to Wrangel, $10. The last rate may be slightly varied.

All the foregoing rates are now in force.

A budget of news from the frozen-in Yukon river steamers has been received from the lower river. Parts of the Sovereign's machinery became broken & others were worn out. Some of the parts could not be replaced, but could be repaired provided they were taken to a foundry. Mate Tritton was allotted the task of bringing out the heavy pieces, & lately reached Skagway. He started from Circle City, with a dogteam, in a blizzard, for the perilous trip to Skagway. For 18 days he struggled over the frozen surface of the lower Yukon to reach Dawson. The river below Dawson is entirely different from the river above. The upper Yukon is frozen smoothly & makes a good sledding track. The lower river congealed in bunches and is as rough as the top of a miniature mountain range. Over this ice Tritton struggled with his heavy load. The fact that he was but 2 days longer on the trip from Dawson to Skag-

the larger steamers ... traffic from the temporary terminus of the White Pass Ry. at the head of Lake Bennett to the White Horse rapids, where connection is made with the steamers to & from Dawson City, the Co. has under construction in the East a fast packet steamer for the lake work. This boat is being built of steel, with a length of 115 ft. & 24 ft. beam. She will have 3 fore-and-aft and 7 transverse water-tight compartments. The boiler is of the Yarrow water-tube type, & the engines are of great power, giving the boat an ordinary working speed of 15 miles an hour. She will be fitted with electric lights, including search-lights, & will be equipped for the accommodation of passengers. She will be completed at an early date, & put into service immediately upon the opening of navigation. The Co. has made arrangements for warehouse & wharfage facilities at Dawson City & other important Yukon points, & has secured fuel for the entire season. A New York despatch says the Canadian Development Co. has bought the steamships Werra & Fulda, & will put them on the Alaska route. Sometime since it was stated these vessels had been sold to the Canadian Steamship Co., to run between Milford Haven and Paspebiac, Que.

Richelieu & Ontario Navigation Co.

The following report was submitted at the annual meeting, Feb. 14:—Your Directors submit herewith a statement of the Co.'s business for 1898:

	1898.	1897.
The gross receipts were	$728,013.17	$688,026.03
Operating expenses	590,936.53	552,959.94
Fixed charges	25,070.89	26,945.99
Net profit	$112,027.55	$108,130.09

Two semi-annual dividends of 3% each amounting together to $104,400, were paid, leaving $7,627.55 to be carried to surplus. The earnings show a continued increase, notwithstanding that the 2 large railway companies made a reduction of 50% in their passenger rates throughout the entire season, & that owing to the Spanish-American war, the tourist traffic was very light up to the